H685m Series Router

User Manual

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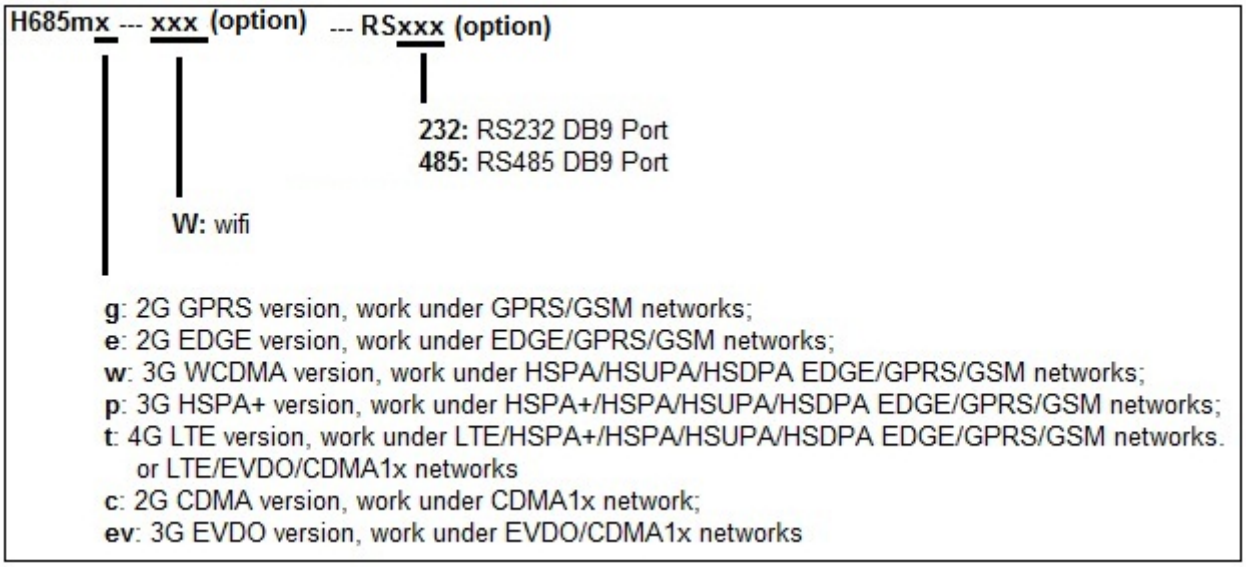
Chapter 0

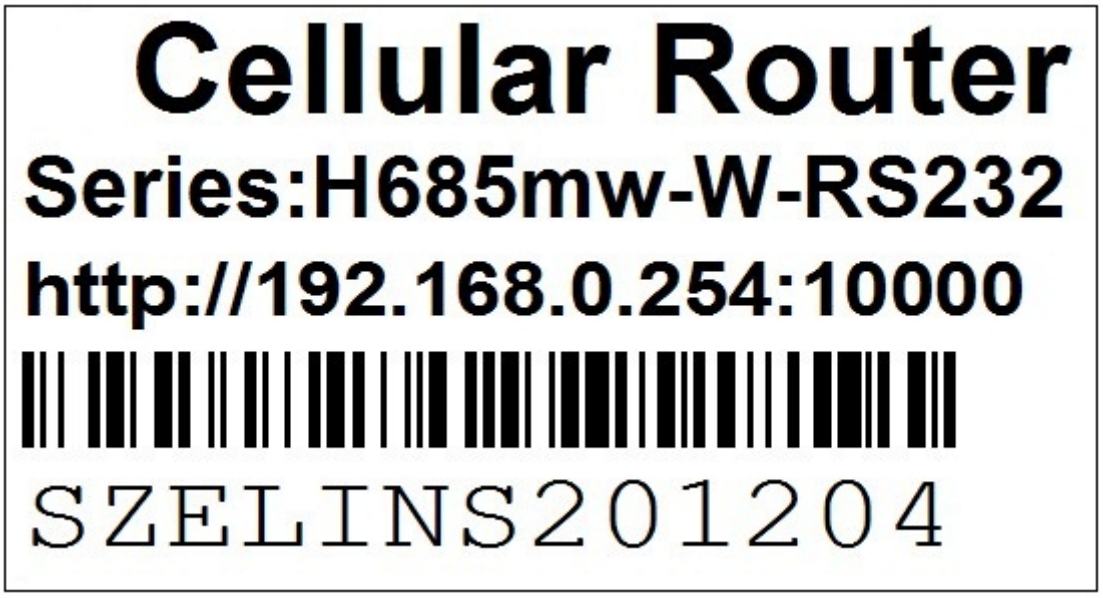
0 Preparation job before configuration

0.1 Learn your router version and feature

1) H685m series contains different version and option feature. Please learn it before using it.
H685m series defines the model as follows,


H685mx --- xxx (option) --- RSxxx (option)
232: RS232 DB9 Port
485: RS485 DB9 Port
W: wifi
g: 2G GPRS version, work under GPRS/GSM networks;
e: 2G EDGE version, work under EDGE/GPRS/GSM networks;
w: 3G WCDMA version, work under HSPA/HSUPA/HSDPA EDGE/GPRS/GSM networks;
p: 3G HSPA+ version, work under HSPA+/HSPA/HSUPA/HSDPA EDGE/GPRS/GSM networks;
t: 4G LTE version, work under LTE/HSPA+/HSPA/HSUPA/HSDPA EDGE/GPRS/GSM networks.
or LTE/EVDO/CDMA1x networks
c: 2G CDMA version, work under CDMA1x network;
ev: 3G EVDO version, work under EVDO/CDMA1x networks

2) Find the modem type info at the back cover of the router. This will be used while do configuration.
For example:



0.2 Prepare SIM Card and working condition

1) For GSM/GPRS/EDGE/HSDPA/HSUPA/HSPA/HSPA+/4G LTE networks or TD-SCDMA networks, please get a SIM card with data business.
2) For CDMA2000 EVDO/CDMA1x networks, please get a UIM card with data business or inform us before order if the network uses non-ruim (nam-flashing).
3) Make sure the sim card or uim card is with enough data business and balance.
4) Make sure the signal is good enough where you test or install the router. Weak signal will make the router no work. If you find your signal strength is not good, please contact us for high gain antenna.

Chapter 1

1 Prologue

This document is just suit for the following products; it helps you quickly to used cellular Router function and resolves some common questions.

1.1 Version

Version	Date	Description	Author
3.95	2012-7-12	updated	Jason.Zou

1.2 Referenced Documents

H685m_Datasheet_Eng.pdf

1.3 Notice

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Chapter2

2 Introduction

2.1 Brief

3G Series Router is easy to install, reducing the Reliance on the end customer and enables direct access to your remote LAN devices for control and monitoring purposes, it enables companies to remotely access equipment at mobile, remote networks and isolated sites.

3G Series Router is a dedicated ideal data transmission channel for industrial applications. It can be operated at GPRS or CDMA 1x or EDGE or HSDPA or HSUPA or EVDO network by selecting a different radio module

2.2 Specification

Please follow the related specification datasheet

Chapter3

3 Getting Started

3.1 Panel introduction

Power supply interface: **DC5V-27V power supply (9V or 12V suggested), Please the fixed necessary power supply of connection product is ensured voltage and the current parameter of power supply if customer exchanges with other power supply. Special attention: If customer has changed the power supply, sometimes can because of twinkling the current ability and leads to Router product reboot inadequately**

Ethernet interface: **Can recognize voluntarily crosses or the straight networking winding thread, and consult 100M voluntarily and 10M's network speed merit ability**

Antenna interface: **standard SMA antenna interface**

Notes: please install the sim card and antenna before plug the power adapter. Wrong operation will defeat the router or the sim card.

3.2 The Port & LED State

3.2.1 Port

UART: DB9 transparent transmission port. Support RS232/RS485/TTL (Please confirm which one you need before order).
PWR: Power input interface. DV5~27V, 2.5mm.

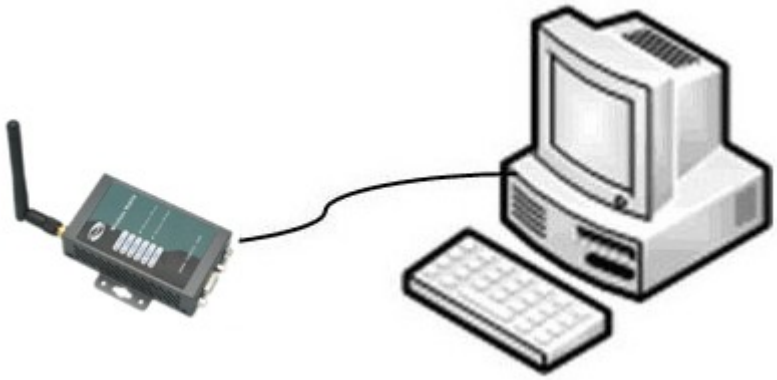
SIM: SIM Card Slot. Push the yellow button beside sim card slot to take out the sim card tray, put the sim card well and insert it.
USB: mini USB port to be USB modem.
LAN: RJ45 Ethernet lan port.
RST: for reset to factory default
WiFi: Optional for WiFi external antenna.

3.2.2 The system work LED state explanation

	Instruction	Marks
SYS	System running Led	Long light-on when booting, blink after booting
LAN	LAN port Led	Fast wink when LAN transfers data
VPN	VPN Led	Light-on when VPN is linked
CELL	Network data Led	Blink after booting or transfers data
WIFI	WiFi Led	Fast wink when WiFi module is on
Link	Cell online LED	Light-on once the router is online

3.3 Connect to products

Please connect antenna and RJ45 cable with our products,



3.4 Insert SIM Card

Insert SIM card to the SIM Card Slot of the router.

Import Notes: When the router is power on, never insert or take out the sim card, which will cause router damaged.

3.5 Login Web

3G Cellular Routers contains WEB SERVER, CONSOLE, TELNET and other configuration mode. It is suitable for different users for configuration operation in local or remote. And the web server is easiest to be used, so we advice your to used this configuration mode.

3.6 Connection configuration

Step 1: Ensure that the computer is on the same network address range as the Router and make it as your computer's default gateway and DNS server.

Consult your operating software user manual to determine how to change the IP address on the Ethernet port of the computer and the default gateway address. In the example below the IP address of the PC has been set to 192.168.0.2—192.168.0.253 and the default gateway is the default address of the cellular Router (192.168.0.254) and Primary DNS as 192.168.0.254

For Windows XP the sequence is:

START >>Control Panel >> Network Connections >>Right-Click on Local Area Connection >> Properties >> Internet Protocol

Change the computer's IP address, default gateway and DNS server and then click OK.

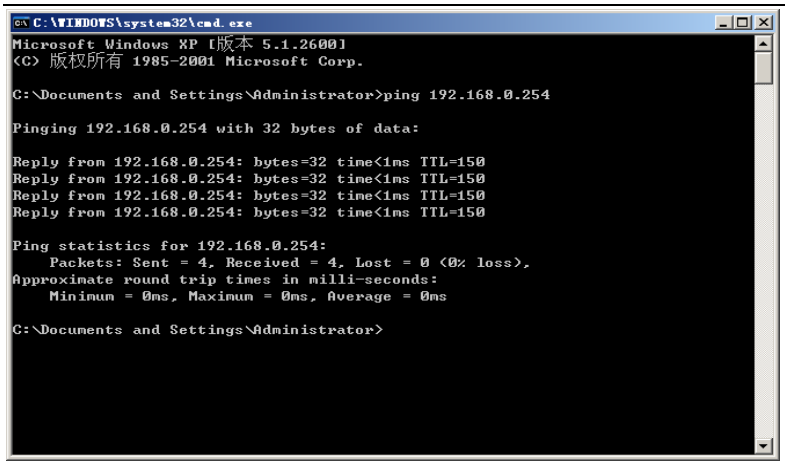
It may take a minute or two for the computer to be allocated the new IP address. In some cases, a reboot may be required

Step 2: To test that there is connectivity between the computer and the Axon, you can ping the Axon using the ping command at the command prompt. To get to the command prompt in Windows XP, use:

START>>RUN>>cmd

The ping command is entered as follows:

If successful you should see some ping statistics like the following example:


C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>ping 192.168.0.254
Pinging 192.168.0.254 with 32 bytes of data:
Reply from 192.168.0.254: bytes=32 time<1ms TTL=150
Reply from 192.168.0.254: bytes=32 time<1ms TTL=150
Reply from 192.168.0.254: bytes=32 time<1ms TTL=150
Reply from 192.168.0.254: bytes=32 time<1ms TTL=150
Ping statistics for 192.168.0.254:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Documents and Settings\Administrator>

1) If having appeared with command: "Request timed out." That indicate PC and 3G cellular Router are not in the same net section. Please run “IPCONFIG/ALL” under the command model.

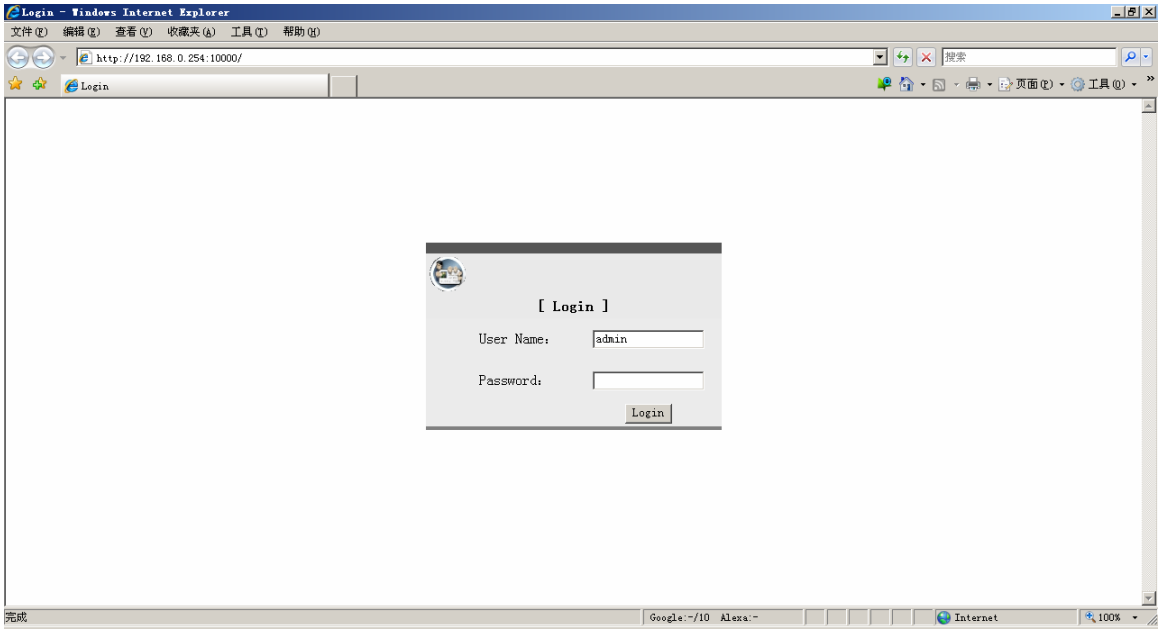
Please check the two IP are in the same set. If they are, but still ping successfully, it is possibly wrong in PC ARP. Recommend run “ARP –D” first. Attention: If appears former error in setting more than one 3G cellular Router, because the same default IP but different MAR, then it must run “PING” after “ARP –D”.

2) It indicates that no real connect between PC and H685m 3G cellular Routers when come out “Destination host unreachable”. Please check or change the cable after setting the 10M Half model of the Ethernet card.

3) If still PING blocks up, please whether or not can lead to by PING between your PC and other PC, and checks up if PC has the software such as fire wall at the same time. If still PING blocks up, please whether or not can lead to by PING between your PC and other PC, and checks up if PC has the software such as fire wall at the same time.

3.7 Login WEB configuration

Open IE on your PC, type the default URL address *http://192.168.0.254:10000*

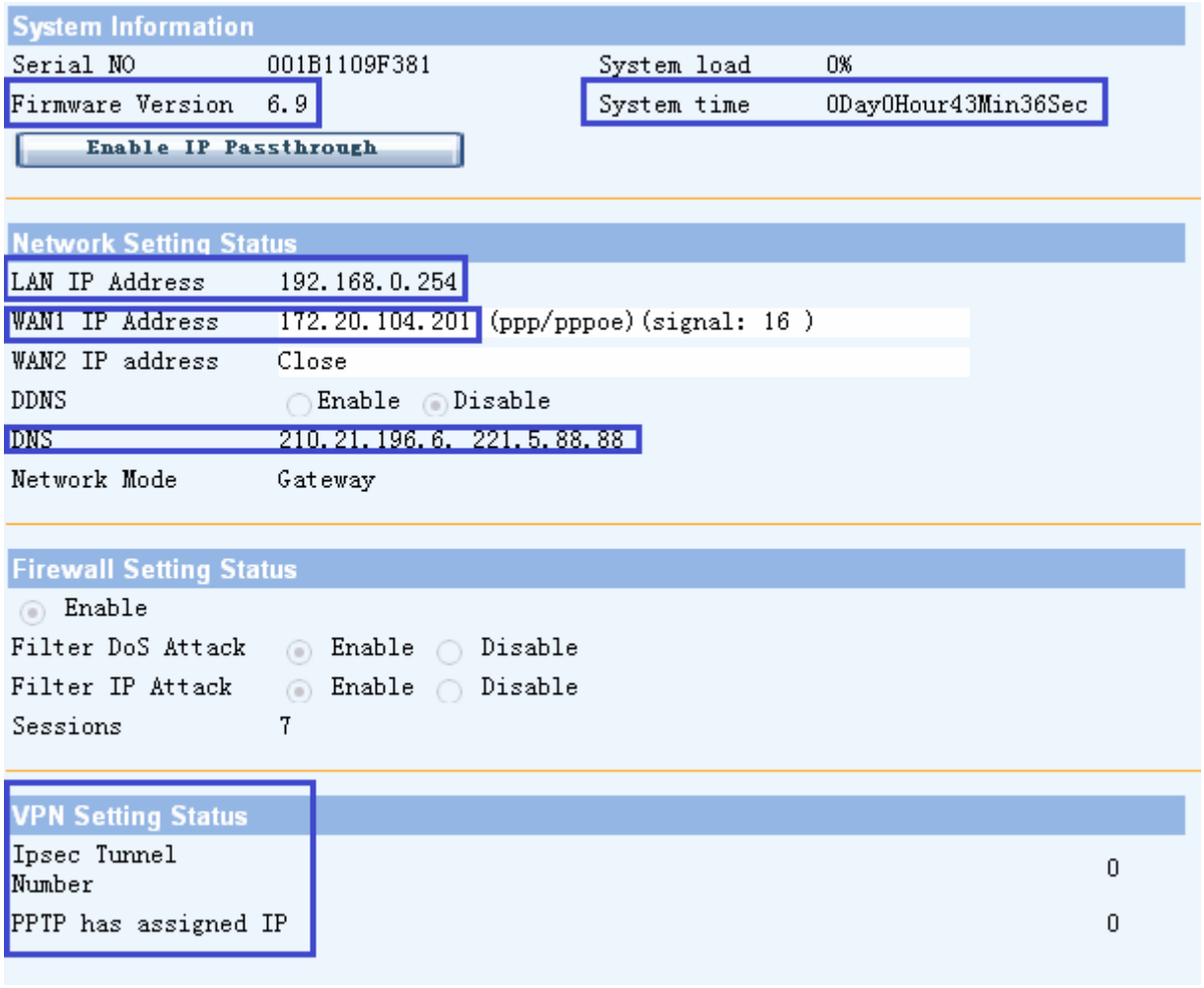


The H685m 3G cellular Router is configured using a web browser as the interface. To log-on to the web server, enter the IP address of the 3G cellular Router in the browser address window. The default address is **192.168.0.254:10000**. A log-on screen should display.

For 3G series cellular Router,
Username: admin Password: 888888

3.8 WEB configuration

If Login successful, the browser should display the following web page,



Firmware Version: shows the version of the software firmware
System time: router's working lasting time. Once the router re-powers, it will count from zero
LAN IP address: it's the local LAN IP address of the router
WAN IP Address: it shows the IP address assigned from the ISP once the router is online
DNS: it shows the assigned DNS from the ISP once the router is online
VPN Setting Status: once you config the VPN feature, and there is VPN connection, here indicated the info.

Chapter4

4 Main configuration

4.1 Router function configuration

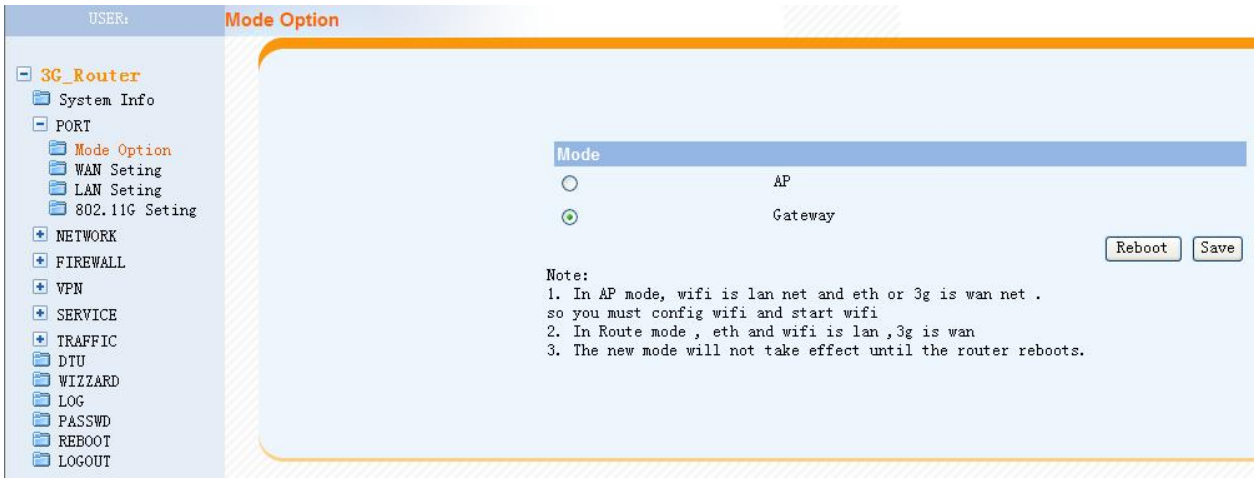
If you need to dial-up an internet network, you can configure Router as following steps

4.1.1 Select working mode (For H685m with WiFi only)

Notes: Skip this step if your router has no such option.

It Includes Routing Mode, Transparent Bridge, and Gateway Mode. We advice to used Gateway mode, default is Gateway mode.

(1) Gateway Mode: If you want H685m router to connect the internet directly. Select *Gateway* mode.



4.1.2 WAN configuration

Before this configuration, please get the APN info parameters from your network provider.

APN info --

Username:

Password:

Dial number(service code):

APN code:

Example 1: for network provider “China Mobile”, the APN info is as follows.

Username: wap

Password: wap
Dial number (service code): *99*1#**
APN code: CMNET

Example 2: for network provider “China Telecom”, the APN info is as follows.
Username: card
Password: card
Dial number (service code): #777
APN code: blank (means no APN code)

Example 3: for network provider “China Unicom”, the APN info is as follows.
Username: none (keep blank)
Password: none (keep blank)
Dial number (service code): *99#
APN code: UNINET

The following table is china common setting from different ISP. Please get your own parameters from your network provider.

ISP	Dial-up Number	Username	password	APN
China mobile	*99***1#	wap	wap	CMNET
China unicom	*99#			UNINET
China telecom	#777	CARD	CARD	

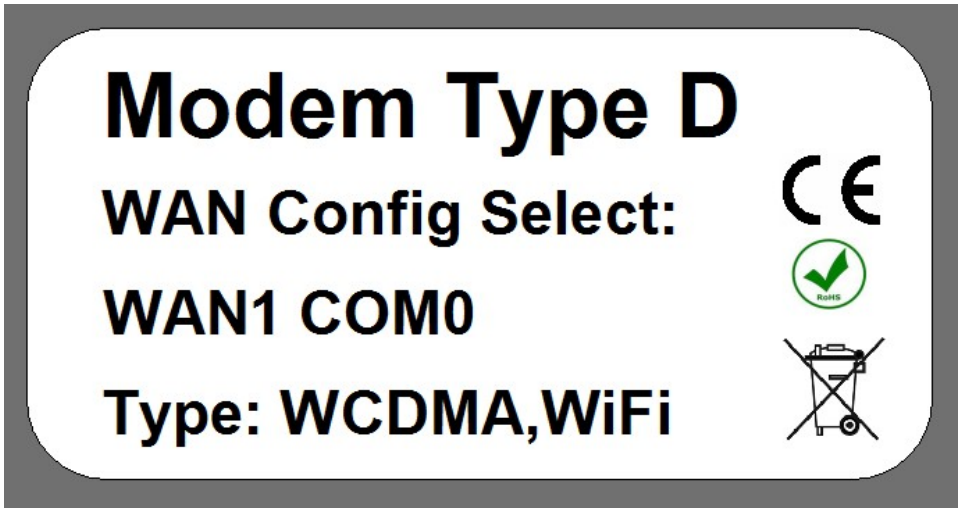
At the router menu,

Click”PORT -- WAN -- WAN Setting”

According to different ISP, WAN configuration include PPP(modem), PPPoE, Static IP, DHCP Mode, PPP(modem) mode: config the router works as 2G/3G/4G working mode.

We usually choose”PPP(modem)” for this product.

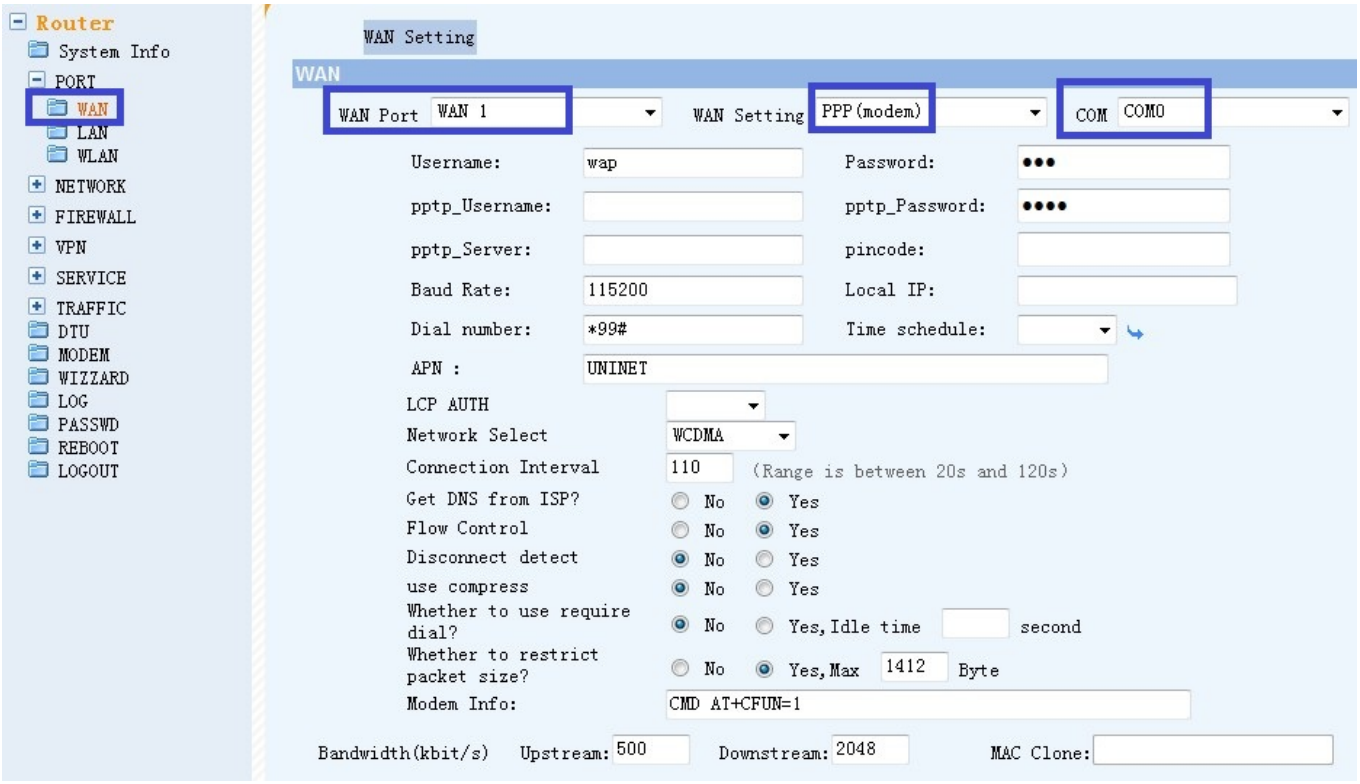
Find the modem type at the back cover of the router. It marks some characters like “Modem Type D” and “WAN Config Select: WAN1 COM0”, and also characters like “GPRS version” or “WCDMA version” or “EVDO version”, for example



This will be used while do configuration.

Warmly reminding: the H685m router has two WAN ports, configure the right one, and please close the other one, otherwise will make the router no work.
For example, if the label marks "WAN1+COM0", then please just configure the WAN1, and at WAN2, please choose "Close" at "WAN Setting" and save it. Otherwise the router will no work.

For example, one H685m router back cover marks "Modem Type D Configure WAN1+COM0", then please configure it as follows,



And here is the default value for different version of router.
The router supports different modem module. It will be installed with different modem models.
Different modem requires different configuration for the WAN port. Please refer to the following table.

Version	Modem Type	Modem Exact Name	WAN Port + COM port
GPRS Version Router	GPRS modem		WAN1+COM0
3G WCDMA or 4G LTE version Router	Modem Type A	MC8781	WAN1+ COM2
	Modem Type B	MC8785	WAN1+COM0
	Modem Type C	MC8790	WAN1+COM3
	Modem Type C1	MC8790v	WAN1+COM4
	Modem Type D	EM770	WAN1+COM0
	Modem Type E	U6300	WAN1+COM2
	Modem Type F	MC8700	WAN1+COM2
	Modem Type G	EM770w	WAN1+COM0

	Modem Type H	EM820w	WAN1+COM0
	Modem Type I	MF210v	WAN1+COM0
	Modem Type J	F3307	WAN1+COM0
	Modem Type K	EM770u	WAN1+COM0
	Modem Type L	AD3812	WAN1+COM3
	Modem Type M	F3507	WAN1+COM0
	Modem Type N	F5521	WAN1+COM0
	Modem Type O	F3607	WAN1+COM0
	Modem Type P	EM730	WAN1+COM0
	Modem Type Q	MC7710	WAN1+COM3
EVDO Version Router	EVDO Type A	MC2716	WAN1+COM0
	EVDO Type B	EM660	WAN1+COM0
	EVDO Type C	MC5725	WAN1+COM0
TD-SCDMA Version Router	TD-SCDMA Type A	MU301	WAN1+COM0
	TD-SCDMA Type B	M305	WAN1+COM0
	TD-SCDMA Type C	LC5740	WAN1+COM0

Notes: the modem type name will be put on the cover of the router or informed by sales. Please find if the modem name (Modem A, B, C, D, E) before configuration.

For example, if the modem is Modem Type E, then you should configure WAN1 COM2 port.

H685m contains four versions:

A. GPRS version

B. WCDMA version

C. CDMA2000 EVDO version

D. TD-SCDMA version

Please choose your right version of the following manual.

For normal use, please just set the following parameters, and keep others as default when we send the router.

a. Username (some network provide has no this value, please keep it as blank)

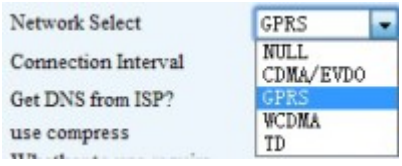
b. Password (some network provide has no this value, please keep it as blank)

c. pincode (If your sim card has pin code, please input here; if none, please keep it as blank)

d. Dial number (it's service number or service code, please get this from network provider. Normally 2G is *99***1#, and 3G is *99#)

e. APN (Please get this from ISP provider and fill in it)

f. Network select. (Select the right one with your router)



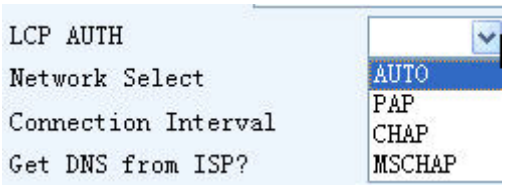
NULL: no select

GPRS: for GPRS or EDGE router

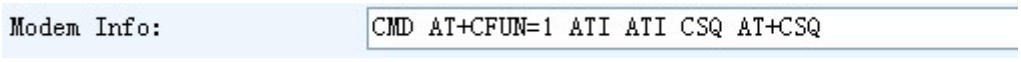
CDMA/EVDO: for CDMA or EVDO router

WCDMA: for WCDMA/UMTS/HSDPA/HSUPA/HSPA/HSPA+ router
TD: for TD-SCDMA router

g. Get DNS from ISP (Choose yes)
h. use compress (normally please choose No)
i. **LCP AUTH:** This parameter is from your ISP provider or sim card provider. If you don't know, you can keep blank as default or select "None" or "AUTO" to try first. But better to confirm with your ISP provider or sim card provider.

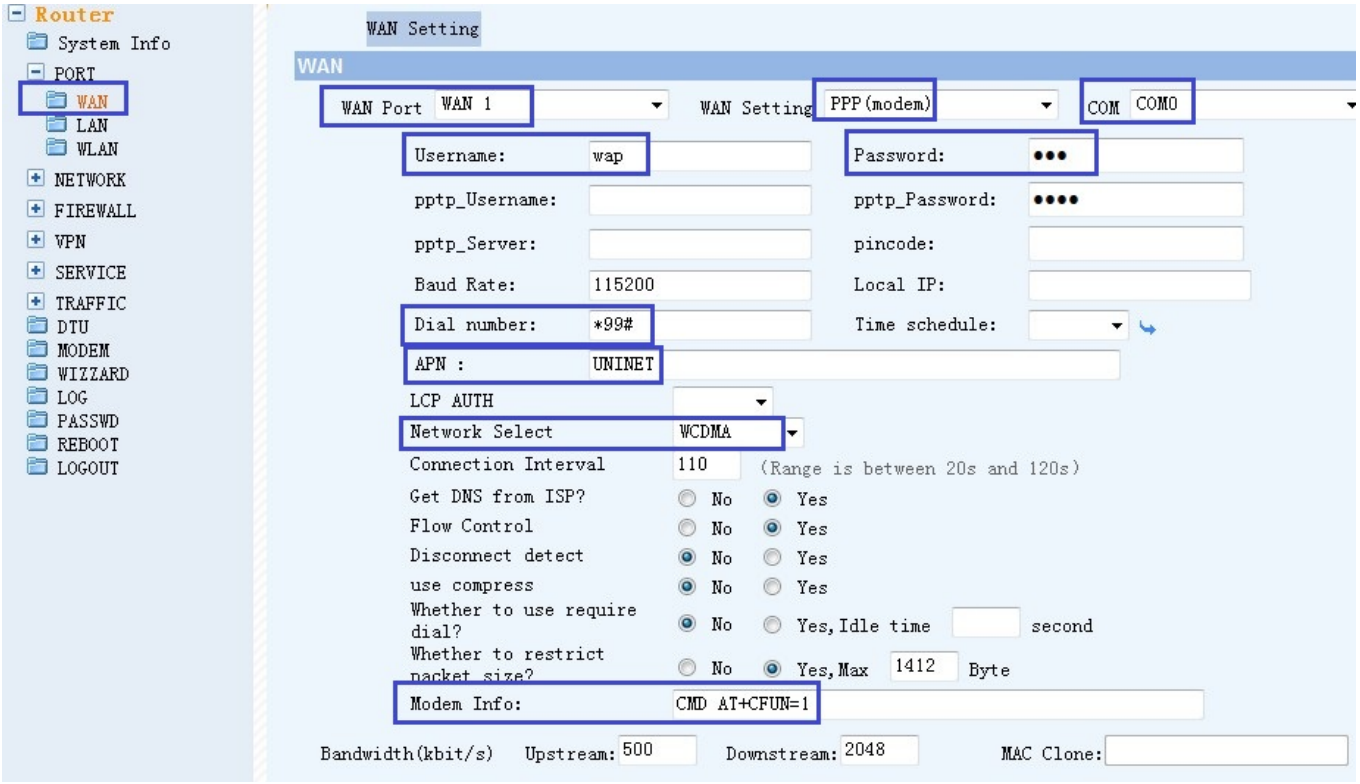


i. **Modem Info:** default keeps it as blank. But for modem type J, M, N, O, please input "CMD AT+CFUN=1 ATI ATI CSQ AT+CSQ", otherwise it will not dialup to internet.



j. **Connection Interval:** Here we suggest input 110 if you don't know your network signal is not good enough. If signal is good, you can input 90.

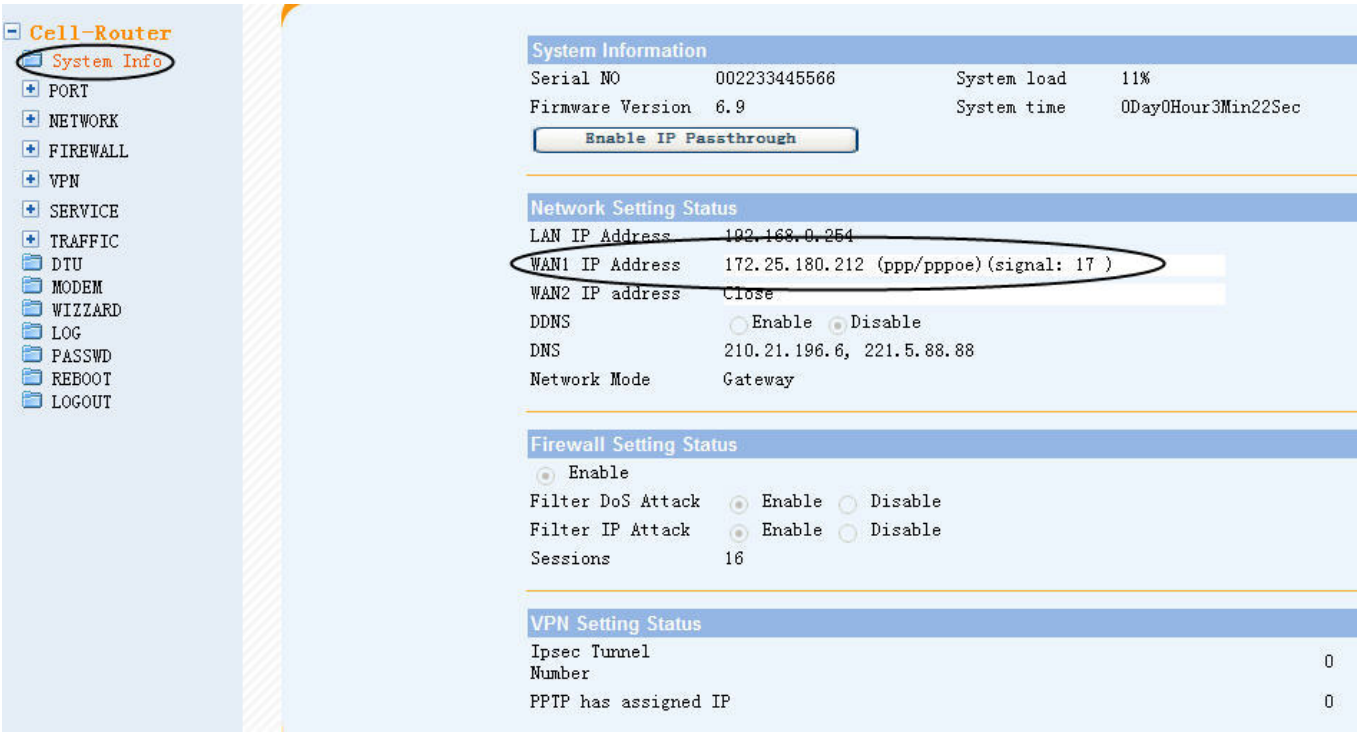
Keep all others as default when we send the router because wrong setting may make the router no work.
Here set an example of China Unicom WCDMA network as follows,



After finishing the configuration, click "Save Button", then Click "Reboot Button".

Recommend to re-power on the router after saving.

Once the router is online, it will get WAN IP at System Info page. See the following example.

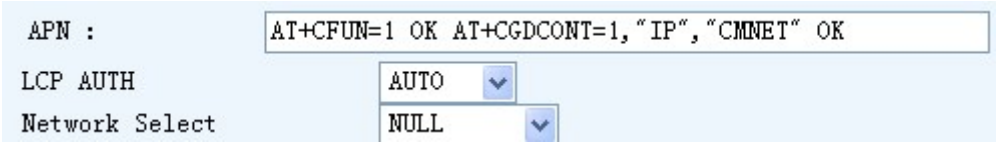


Notes: (Only for TD-SCDMA version router)

if the router's module is *TD-SCDMA Type A* or *TD-SCDMA Type B,* the parameter *d. APN*, and the parameter *e. Network select* will be different from other modem type.

e. Network select: must select *NULL*

d. APN: must with the format of the following parameters. CMNET is the real APN, you can choose the right one with your Network Provider. For other modem type, just fill in the APN parameter directly.



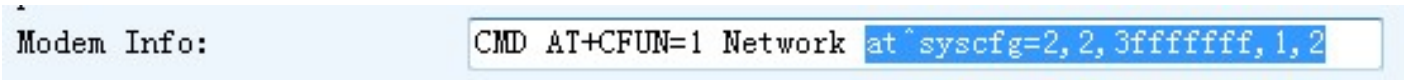
After finishing the configuration, click "Save Button", then Click "Reboot Button".

4.1.3 Module Modem Network Mode Info Configuration

The H685m series router is built-in module inside already. Here to set the module working mode.

Notes: This feature is for manual compulsive operation for the module. For normal use, please keep the parameters as default because the module is already "AUTO mode".

4.1.3.1. At "WAN Port configuration page", fill in related parameter at "Modem Info"



4.1.3.2. Save, then reboot the router

Notes:

1) If don't config "modem info", the default is "auto mode". Normally we recommend customers to set "3G/UMTS mode preferred".
2) If you cannot confirm if the modem mode is changed by sometime, please input related info to set the modem into "AUTO Mode" at "Modem Info", otherwise, the router may not work properly.

Here list the setting for most common using module, please check the mark on the product cover what module inside.

WCDMA Type with Modem Type D, G, H, H1, K, P	
Manual set network	Modem Info Command
Auto	CMD AT+CFUN=1 Network at^syscfg=2,2,3fffffff,1,2
Only UMTS/3G	CMD AT+CFUN=1 Network at^syscfg=14,0,3fffffff,1,2
UMTS/3G preferred	CMD AT+CFUN=1 Network at^syscfg=2,2,3fffffff,1,2
Only GSM/2G	CMD AT+CFUN=1 Network at^syscfg=13,0,3fffffff,1,2
GSM/2G preferred	CMD AT+CFUN=1 Network at^syscfg=2,1,3fffffff,1,2

WCDMA Type with Modem Type E	
Manual set network	Modem Info Command
Only UMTS/3G	CMD AT+CFUN=1 Network at+mododr=1
UMTS/3G preferred	CMD AT+CFUN=1 Network at+mododr=2
Only GSM/2G	CMD AT+CFUN=1 Network at+mododr=3
GSM/2G preferred	CMD AT+CFUN=1 Network at+mododr=4

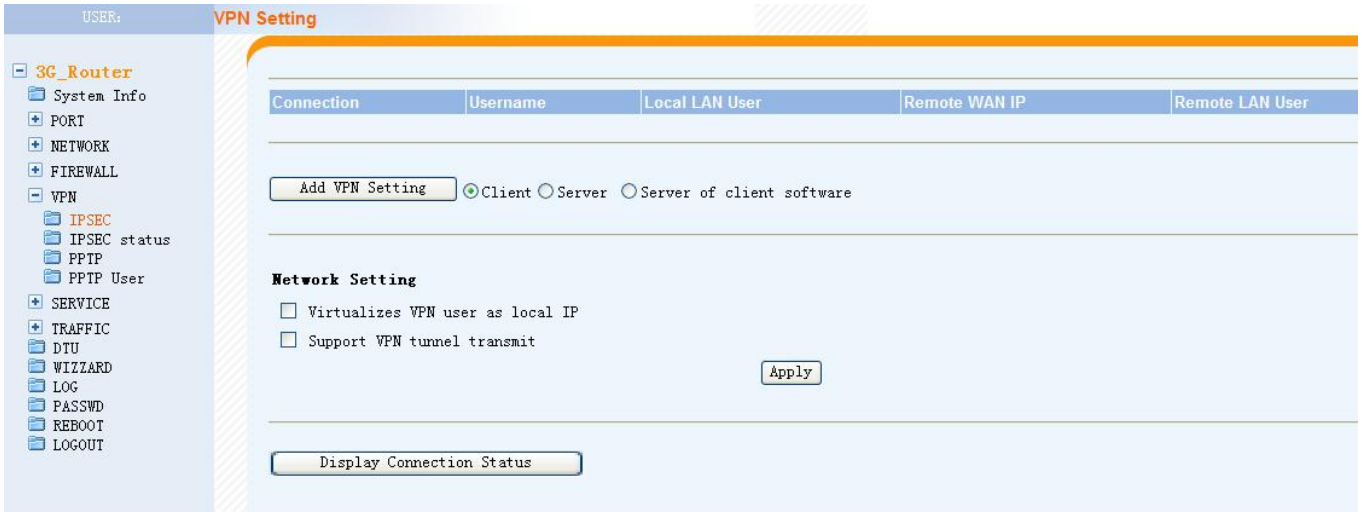
WCDMA Type with Modem Type A, B, C, C1, F	
Manual set network	Modem info
Auto	CMD AT+CFUN=1 Network at!selrat=00
Only UMTS/3G	CMD AT+CFUN=1 Network at!selrat=01
UMTS/3G preferred	CMD AT+CFUN=1 Network at!selrat=03
Only GSM/2G	CMD AT+CFUN=1 Network at!selrat=02
GSM/2G preferred	CMD AT+CFUN=1 Network at!selrat=04

WCDMA Type with Modem Type J, M, N, O	
Manual set network	Modem info
Auto	CMD AT+CFUN=1
Only GSM	CMD AT+CFUN=1 Network AT+CFUN=5
Only UMTS/3G	CMD AT+CFUN=1 Network AT+CFUN=6

4.2 Config VPN

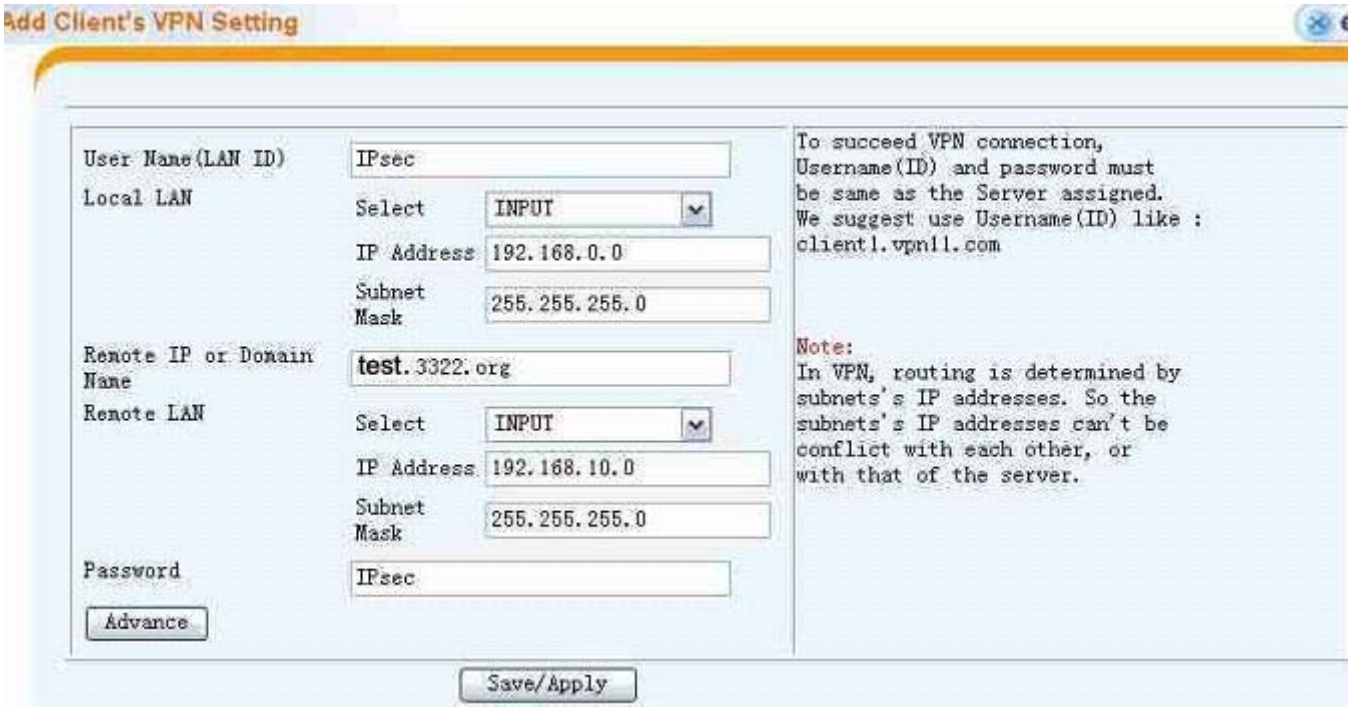
For select this function, you Can configure Router as client and server, how to configure VPN in details?

4.2.1 Configure Router as IPSec client



- **(1) Config 3G Router as client, if connect Router with other equipment**

Select ”Client” option and click ”Add VPN Setting ” button, then display client web as below



User name (local ID): local ID is the name of this connection, which is from the VPN server (host name is default, it must be the same with VPN server configuration)

Local LAN

Select: choose input

IP Address: input local IP address range, for example the client router IP is 192.168.0.254, so here we put 192.168.0.0

Subnet Mask: 255.255.255.0

Remote LAN

Select: choose input

IP Address: input remote IP address range, for example the VPN server router IP is 192.168.10.254, so here we put 192.168.10.0

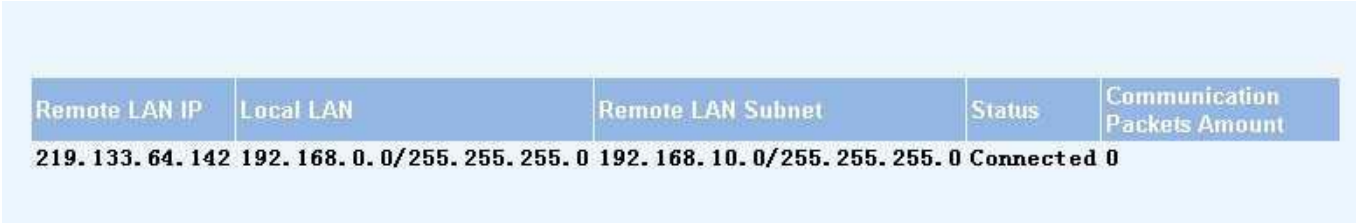
For the sever IP (remote IP), you can fill in the server IP address or server's DDNS.

Subnet Mask: 255.255.255.0

password: the same with in the server, this is unique with the user name from the VPN server router.

Dynamic IP: Dynamic IP means opposite maybe Dial-up connection, so no input IP Address.

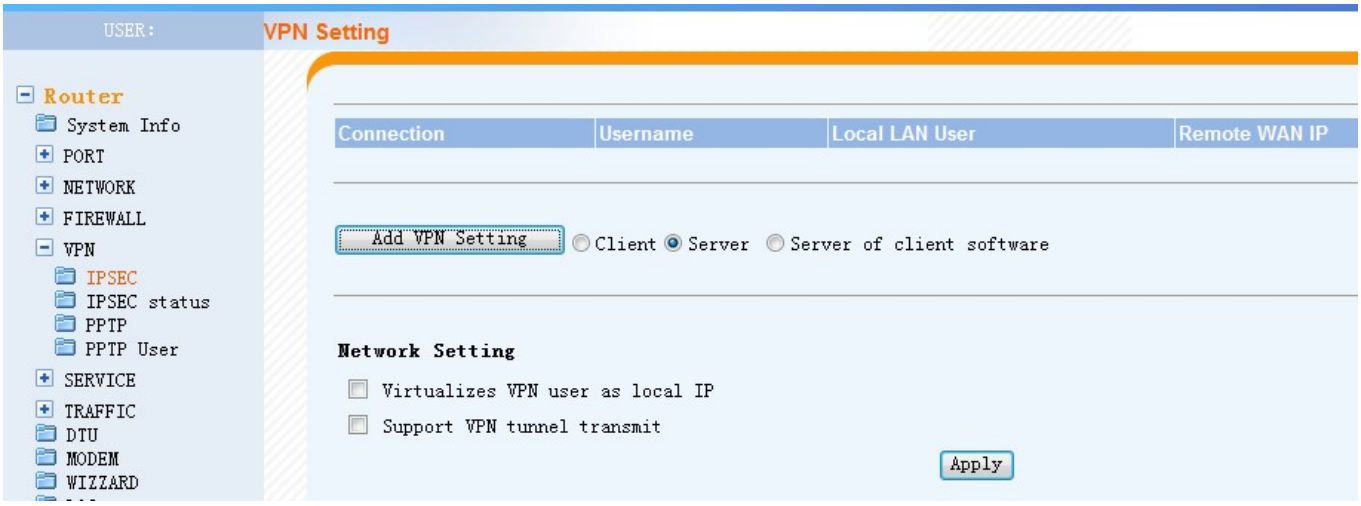
After configuration, save it and re-power on the router. Then the router will connect the VPN by IPSec.
Then you can find at "VPN—IPSEC status" the similar following pictures, which means the IPSec VPN is connected successfully.



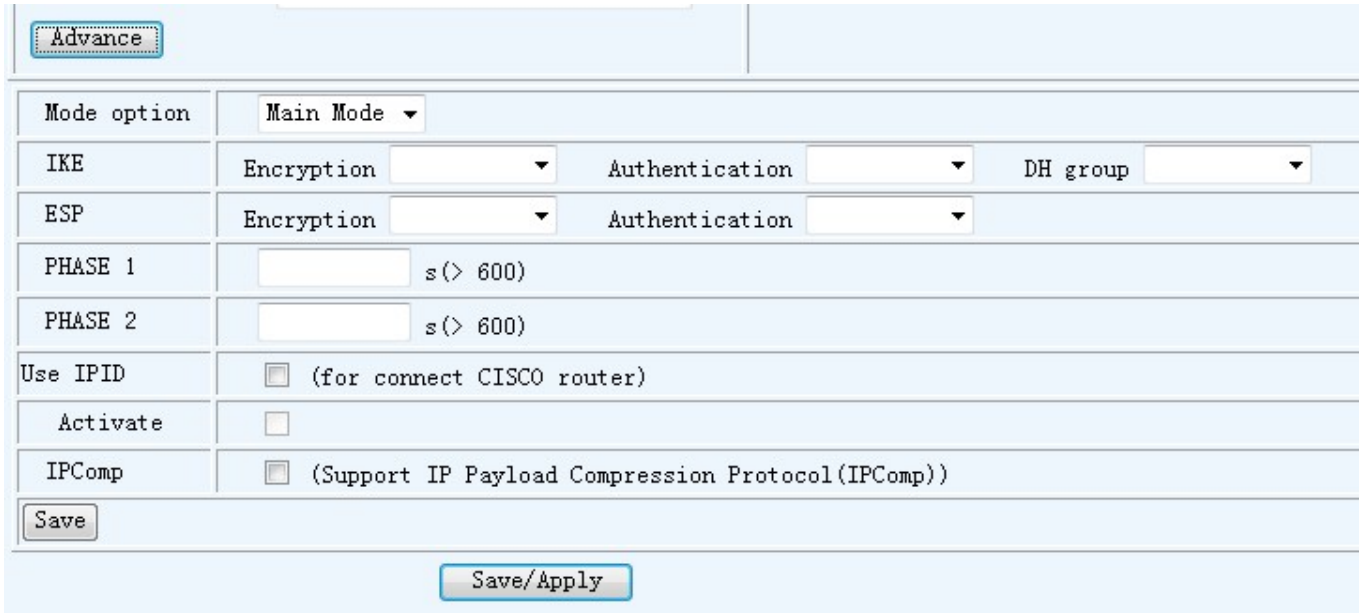
4.2.2 Configure Router as IPSec Server

Notes: this is not recommended. We recommend use CISCO VPN Server Router as a VPN server.

Configure 3g Router parameters as below.
Choose "Server", and click "Add VPN Setting" button to enter.



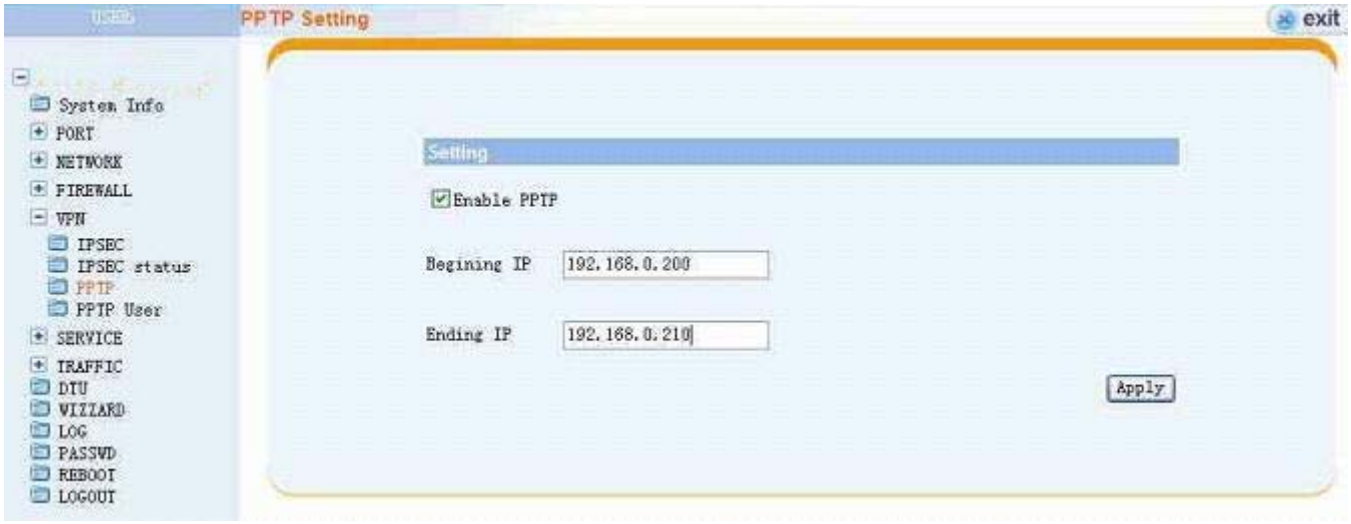
Click “Advance” button if you need set the advance configuration.



Click “Save/Apply” button to make it activate.

4.2.3 Configure Router as PPTP Server

4.2.3.1 Follow the picture below, at “VPN -- PPTP”

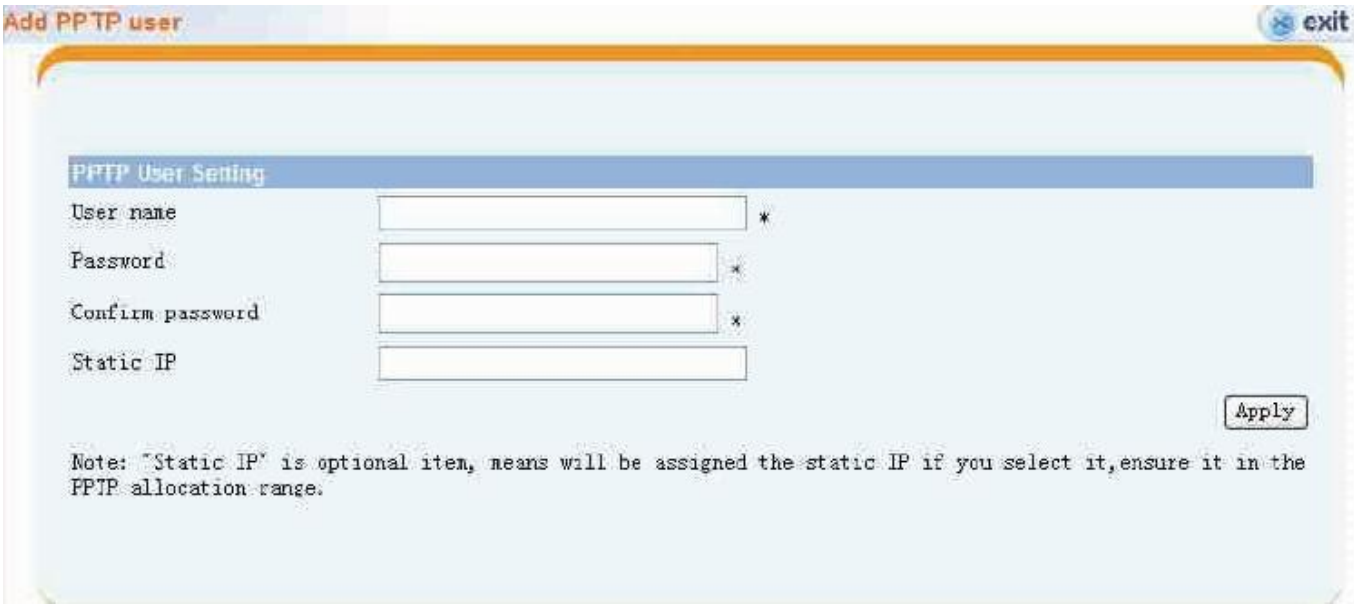


click *Enable PPTP*, and fill in *Beginning IP* and *Ending IP,* which will be assigned to PPTP client. The Beginning IP and Ending IP range must be the same range with the router. For example, the router’s IP is 192.168.100.1, then you can put *Beginning IP* as 192.168.100.80 and *Ending IP* as 192.168.100.90

After setting, please re-power on the router.

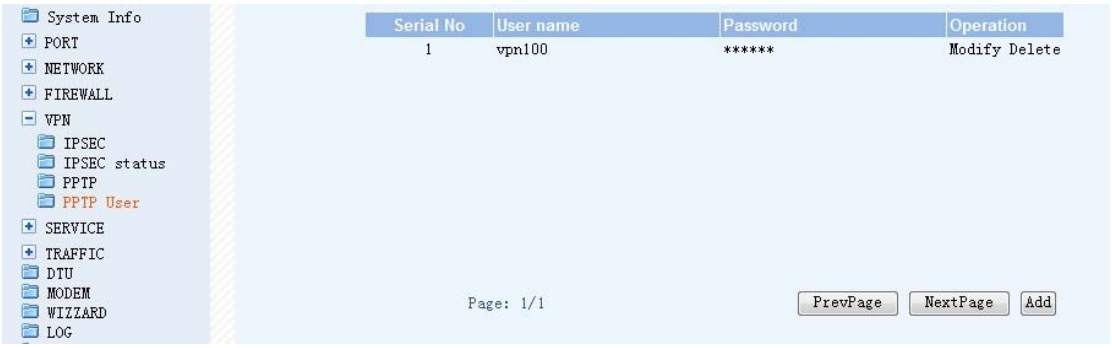
4.2.3.2 Follow the picture below, at “VPN –PPTP User”

Click “Add” button,


Add PPTP user
exit
PPTP User Setting
User name
Password
Confirm password
Static IP
Apply
Note: "Static IP" is optional item, means will be assigned the static IP if you select it,ensure it in the PPTP allocation range.

Fill in *User name*, *Password* and *Confirm password*, click Apply button to save.

It will show the following if the user creating is successful.



4.2.4 Configure Router as PPTP client

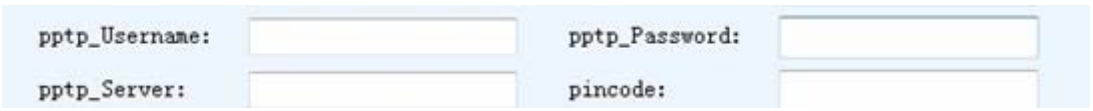
PORT—WAN

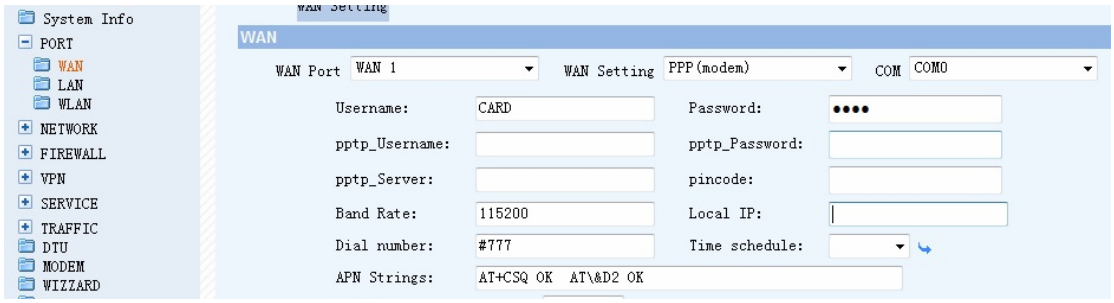
Fill in the following:

pptp_Username: it's from the PPTP server

pptp_Password: it's from the PPTP server

pptp_Server: fill in PPTP Server's WAN IP or Domain. (The WAN IP is the obtained public IP from 3G/GSM networks. Must be public IP or Privacy Network's IP)

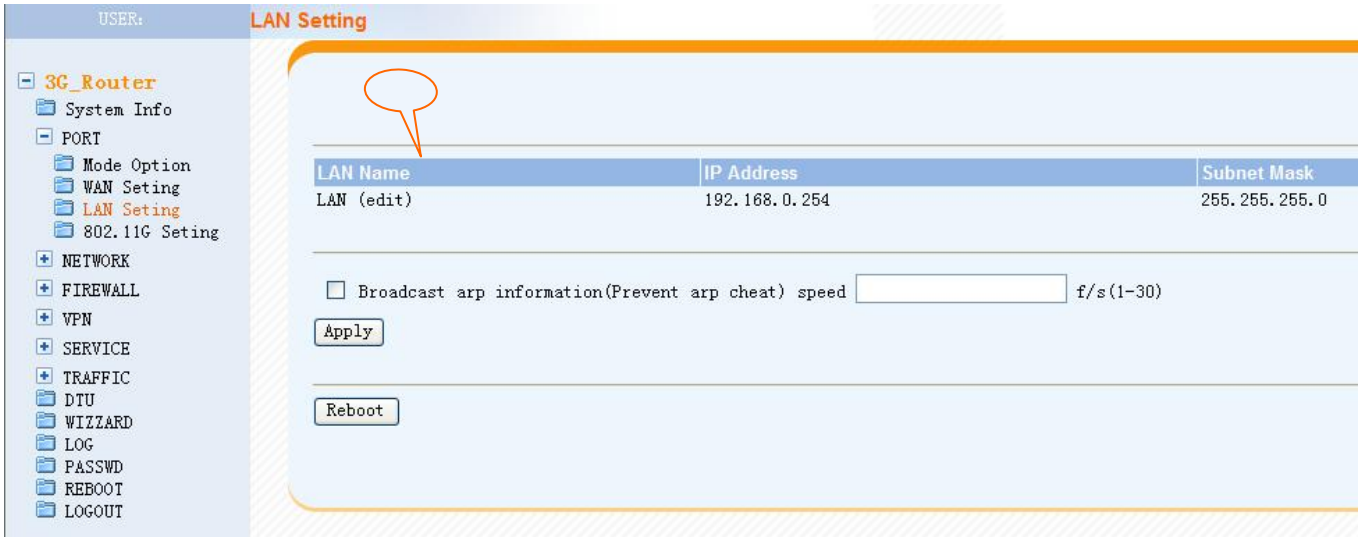




Then click SAVE button, and re-power on the router, then it will connect the PPTP Server after to be online.

4.2.5 Change login address and password

4.2.6 Change login address



LAN (edit): Local Area Network parameter
LAN IP address the default parameter is 192.168.0.254:10000
Subnet Mask: the default parameter is 255.255.255.0
Click ”edit” in LAN (edit) tab, Change local IP address.

If you succeed change the login Address is 192.168.100.254:10000, the other PC must be change local IP address, and its gateway must the same with Router IP

4.2.7 Change login password

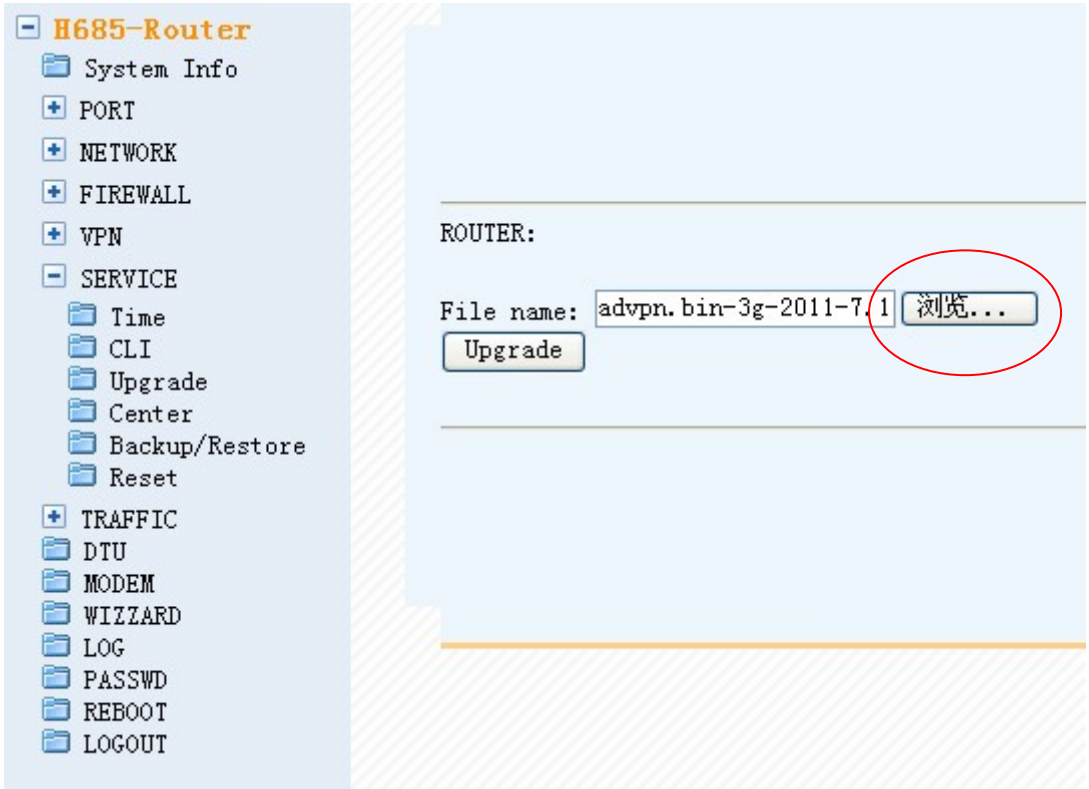
Click ”Password” in left menu, and type a new password to change login password

4.3 Production WEB upgrade

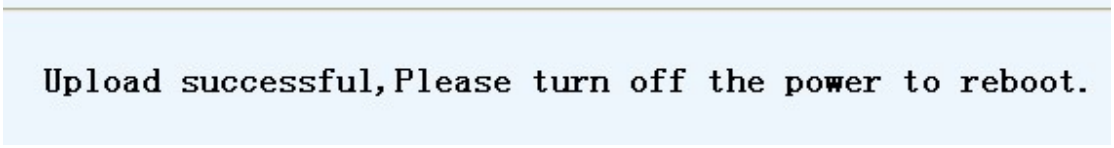
Router supplies product upgrade function for users. It have two different upgrade mode, and we suggest used WEB page mode.

Click “services” in left menu, and select “Upgrade” as following

4.3.1 Service—Upgrade—click “浏览” to select the updating file (for example “uploadvpn.bin-3g-2011-7.3new”), click “Upgrade” button to start.



Notes: Never touch the router or the PC while the updating is going (the PC display will not show the status of updating). It will just show the following picture after finishing.



4.3.2 Power off the router, then re-power on to make the router work.

4.3.3 Close all WAN port.

If your router has WAN1 and WAN2, please close both of them.

If your router has WAN1, WAN2, WAN3 and WAN4, please close all of them.

Don't forget to save after closing each WAN port.

4.3.4 Click "SERVICE—Reset"

Reset the router. Then re-power on and config the router

4.4 Factory default

Router supplies factory default function for user setting. It has two different modes, web reposition mode and reposition jack mode.

4.4.1 Reset via WEB

Click "services" in left menu, and select "Factory default".

When you choose "reset factory default", the system will display as below picture, click "confirm", the Router setting will be lost and reset to factory default.

Default username: **admin**
Default password: **888888**
Default IP address: **192.168.0.254**
Default Subnet Mask: **255.255.255.0**

Windows Internet Explorer
Warning:
If you restore to factory defaulty, you will lose the configuration you set before, are you sure?
确定
取消

4.4.2 Reset via "reset" button

Use a shark tool to press the "R_RST" or "RST" button about 10 sec, it will restore the system parameter to factory default.

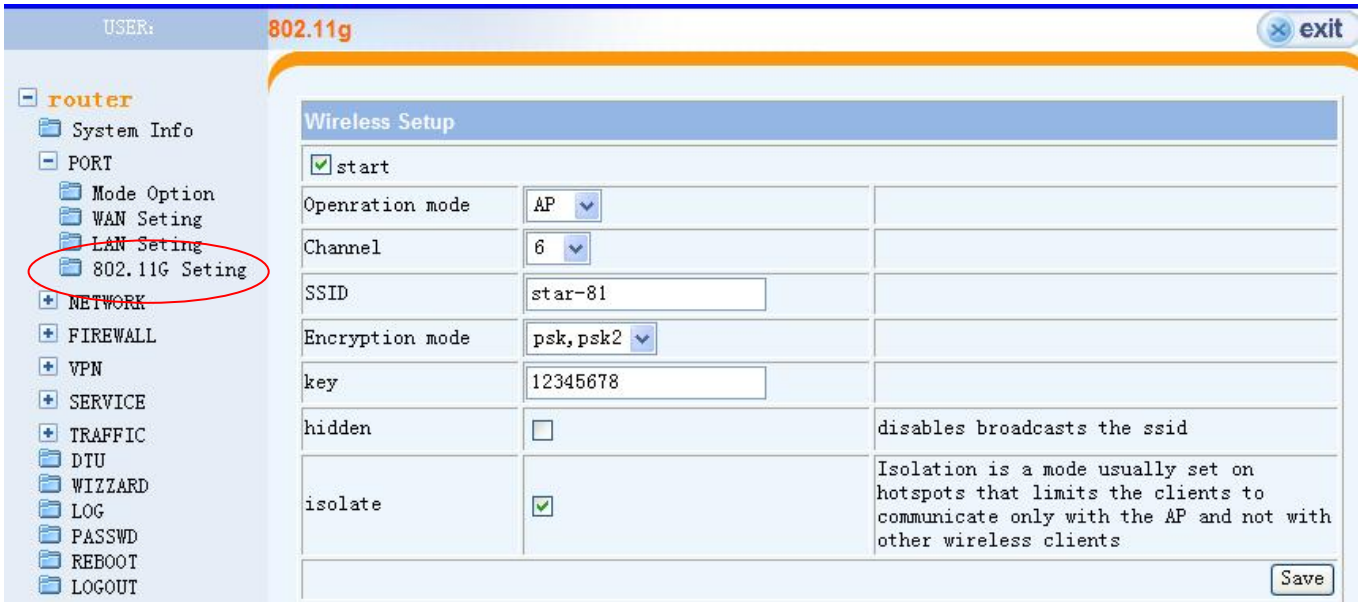
For example, when you forget the web manage password of Router, you can do like this.

Chapter 5

5 WiFi Setting (For version with WiFi only)

WiFi Setting

Click “PORT – 802.11G Setting**”**, and set as follows picture showing



Set the parameters as above.

a. Config Operation mode as “AP”;

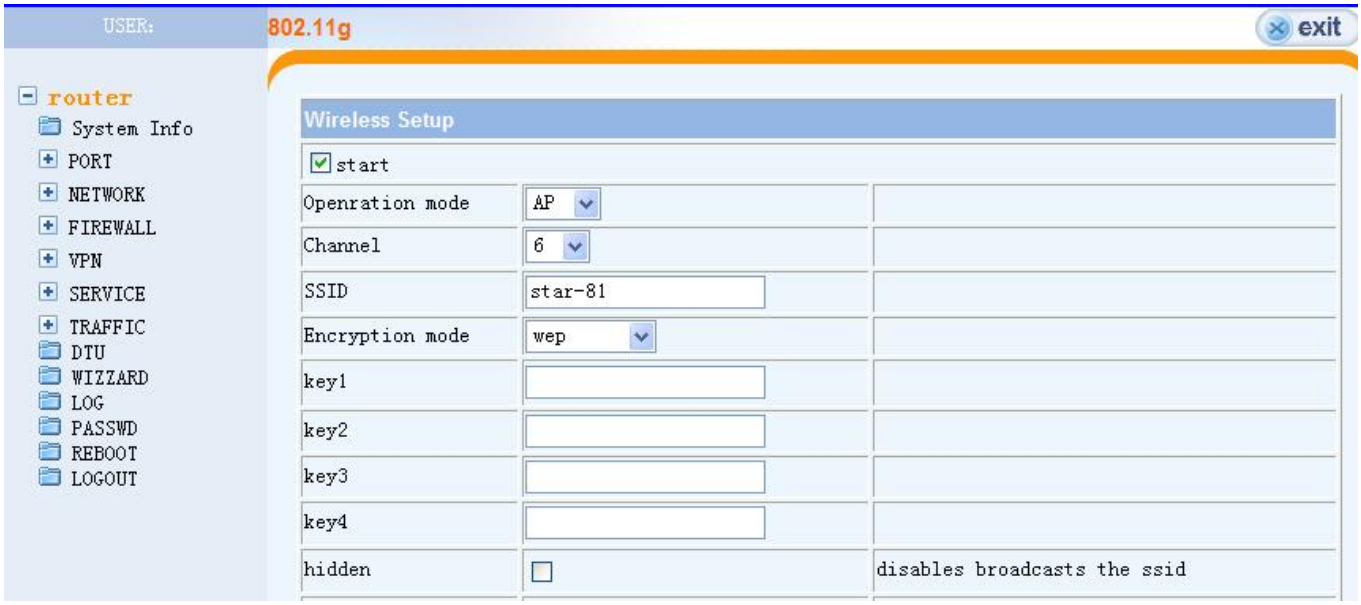
b. Config SSID as you want, for example, “E-Lins Router”

c. You can set the Encryption mode for “psk, psk2” or “wep” or “None”;
and set “key” as the WiFi Access Password;

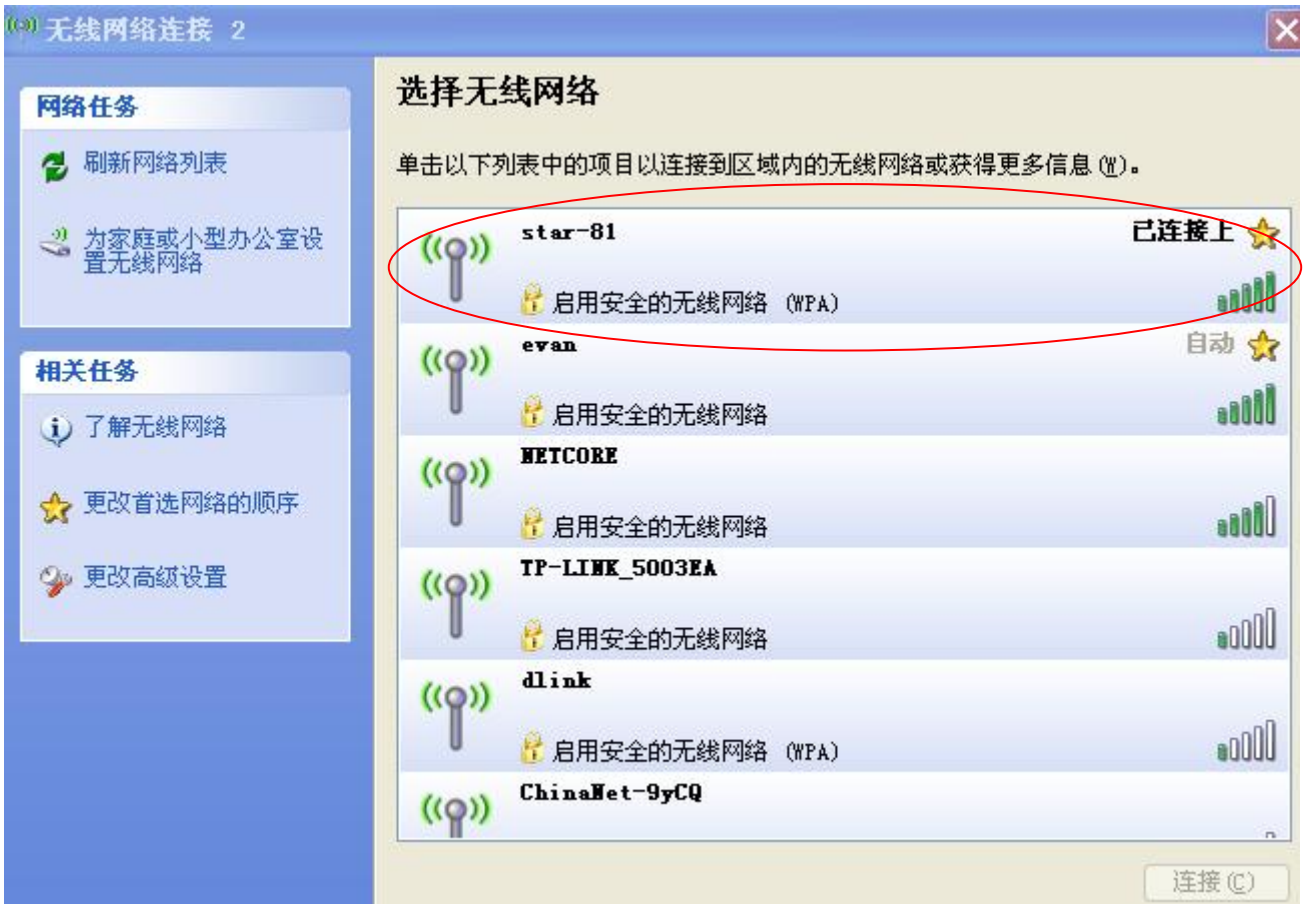
d. hidden: to hidden the SSID broadcasting. Usually we don’t select this option.

e. isolate: usually we select this option

When activate “Encryption mode”, please input the password in key1, key2, key3, and key4. Normally we input in “key 1”.



After all setting for WiFi, from our computer, we can find the SSID we configed.

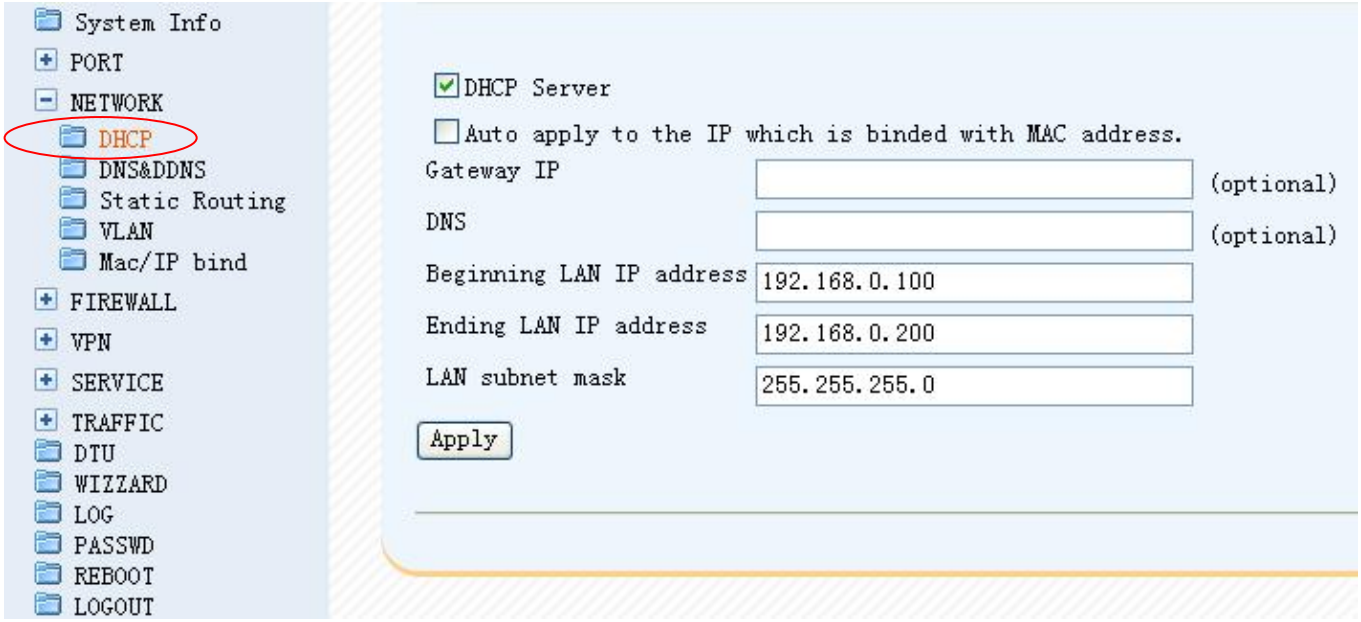


After connection, you can check the wireless status like above. “star-81” is connected.

Chapter6

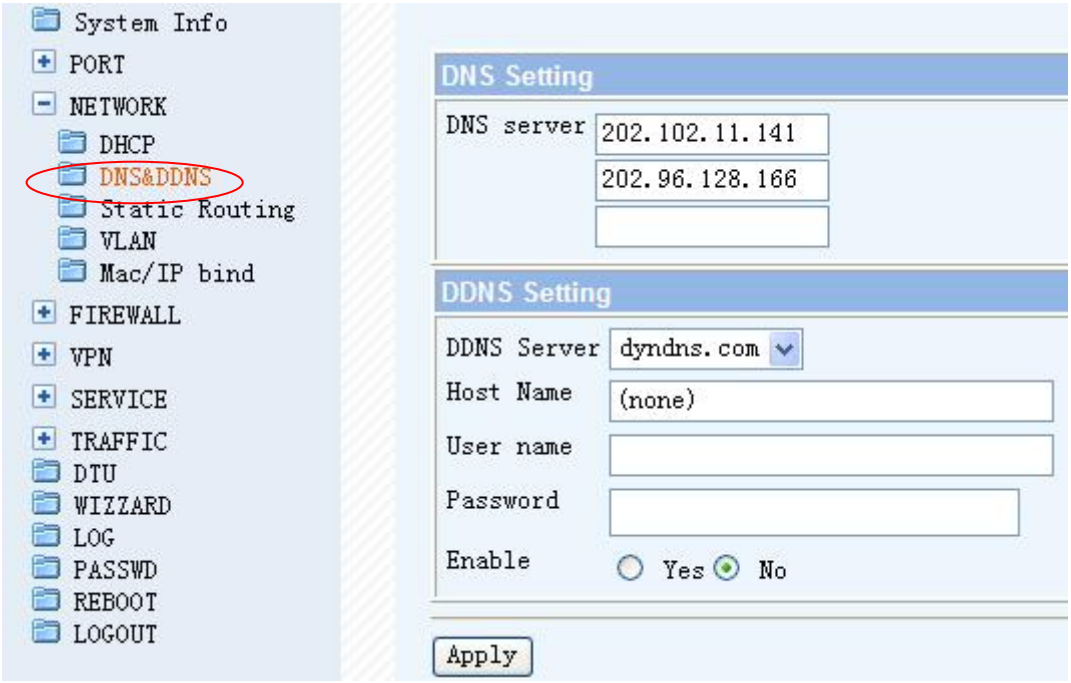
6 NETWORK SETTING

6.1 DHCP



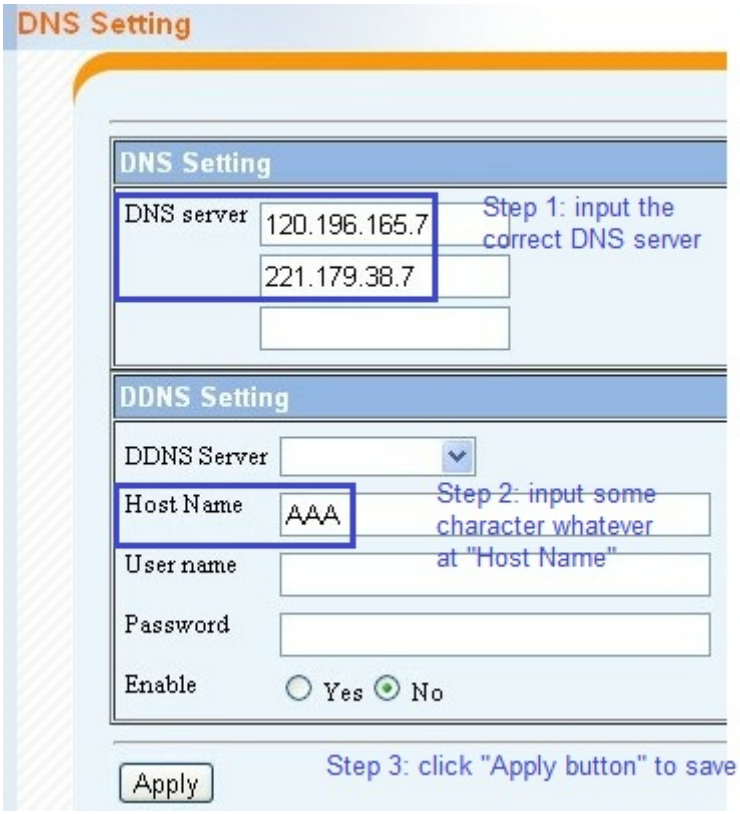
DHCP Server: select it

6.2 DNS & DDNS



DNS Server: input the right DNS Server. Normally it will automatically be filled once the router is online. However some ISP will not provide the DNS automatically, then please input here manually.

Notes: If you want to manually input DNS server, after fill in the parameter, please also fill in the “Host Name” with whatever characters, for example,



DDNS Setting:

DDNS Server: choose the correct sever

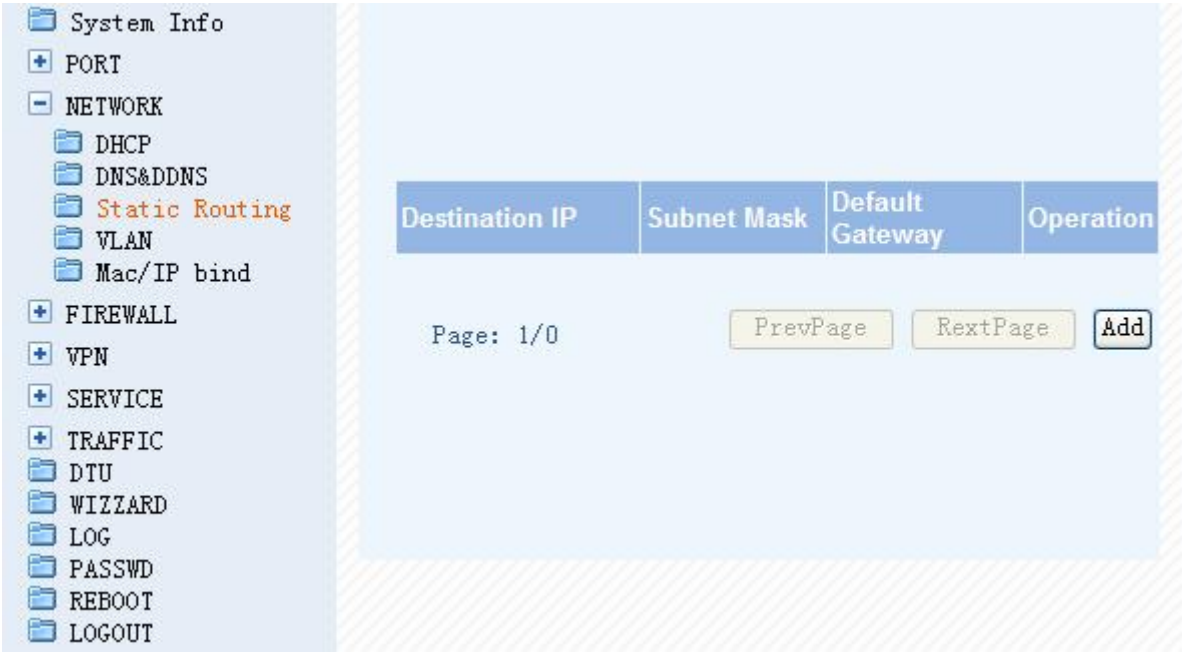
Host Name: input the host name, for example “server1.dyndns.org”

User name: input the user name

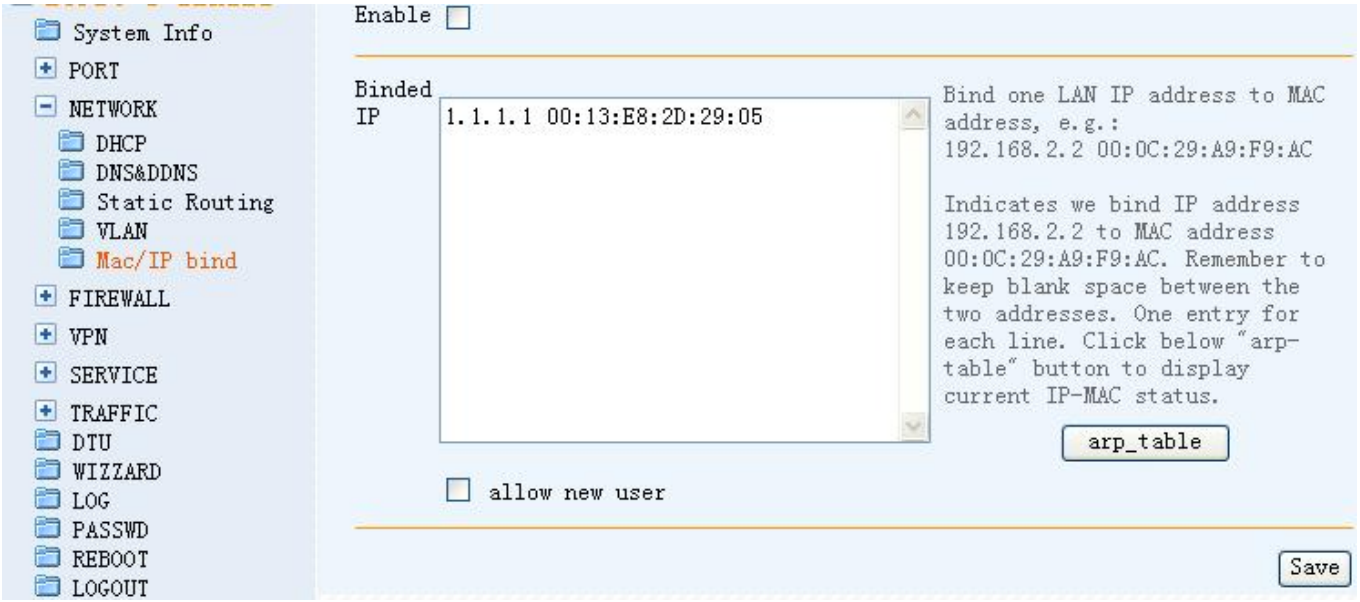
Password: input the password

Enable: If you use DDNS feature, please click “Yes”

6.3 Static Routing



6.4 Mac / IP binding



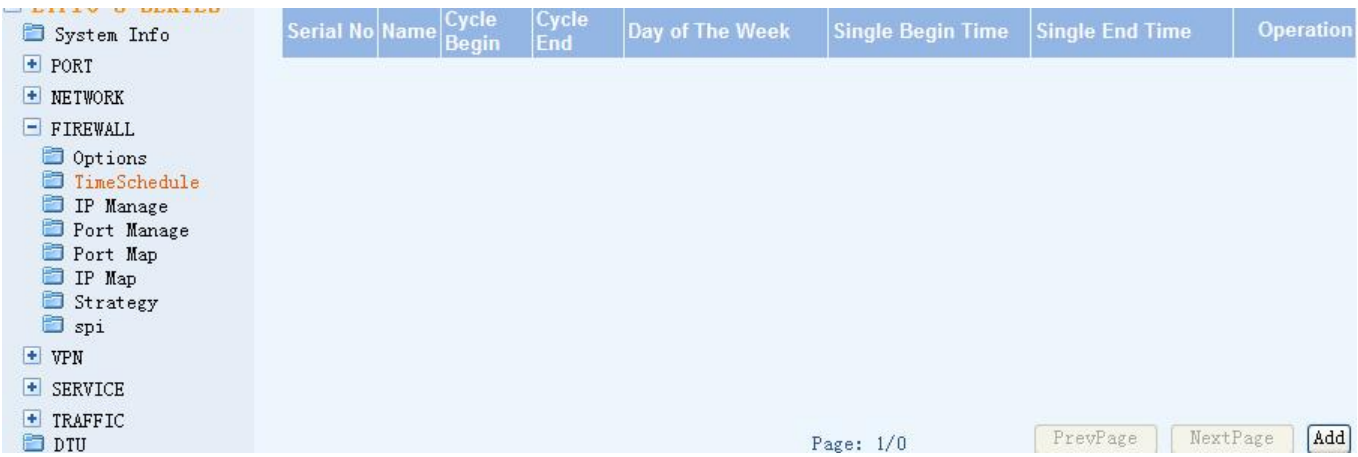
Enable: click to activate

Chapter 7

7 Firewall Setting

7.1 Options

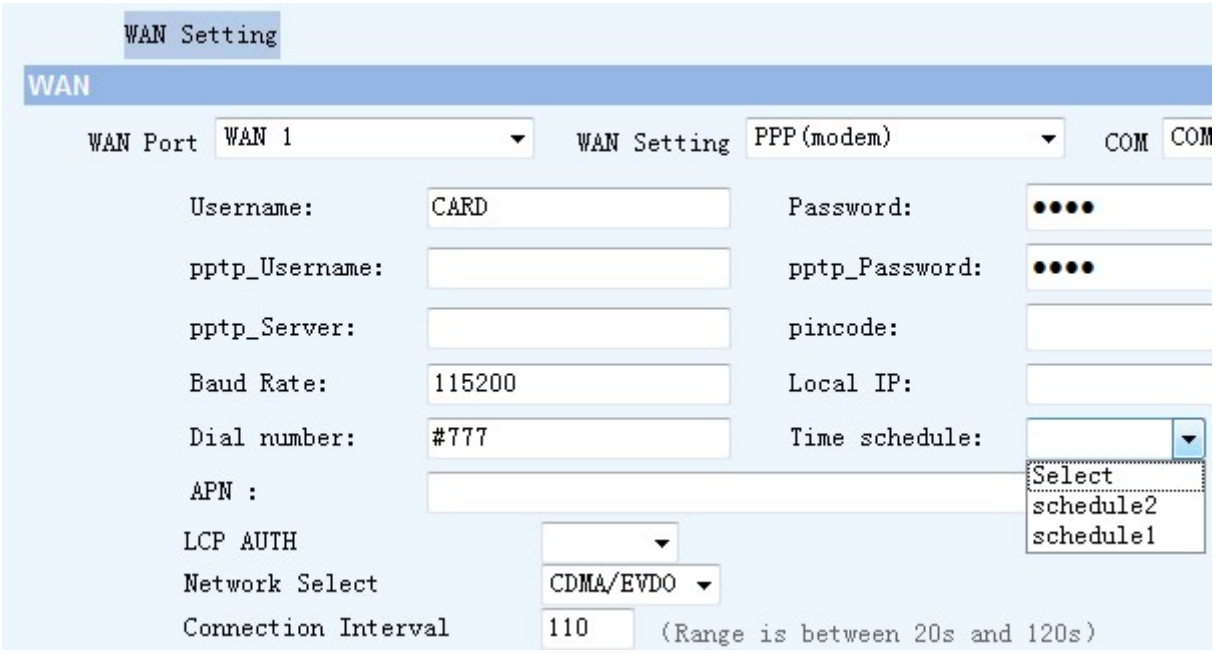
7.2 TimeSchedule



Here we can set schedule time for router work. Examples as follows,

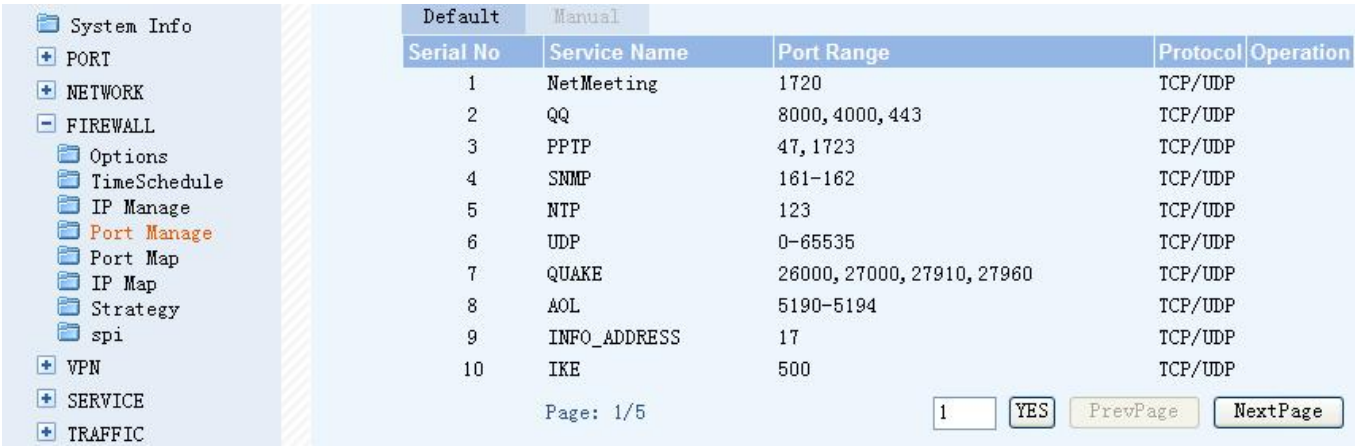
Serial No	Name	Cycle Begin	Cycle End	Day of The Week	Single Begin Time	Single End Time	Operation
1	schedule1	01:00	08:59	Mon, Tue, Wed, Thu, Fri, Sat, Sun			Modify Delete
2	schedule2	00:00	05:59	Mon, Tue, Wed, Thu, Fri, Sat, Sun			Modify Delete

After setting the schedule, at *Port-WAN* Setting, users can select the related schedule.



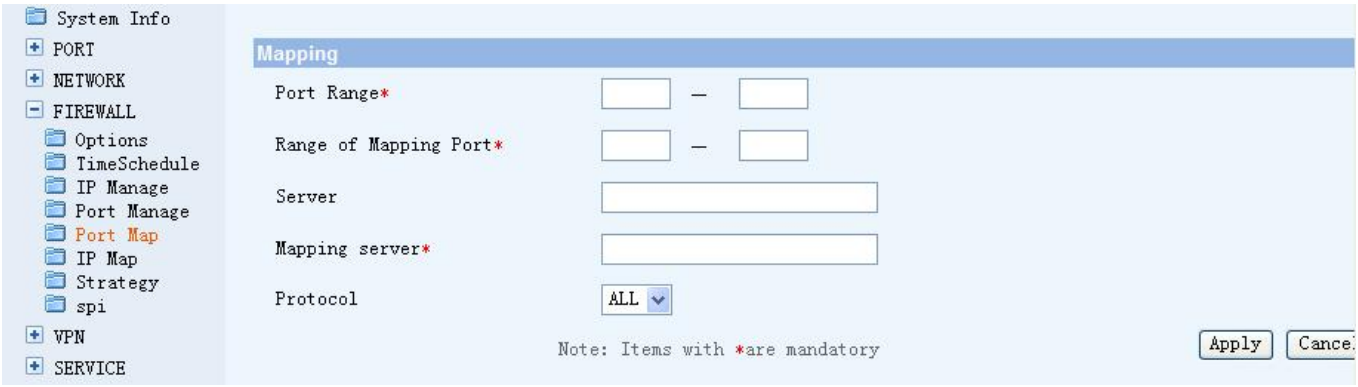
Click *Save* button to save it after selection.

7.3 Port Manage



7.4 Port Map (Port Forwarding)

Click “Add button” to add new.



Fill the parameters (Very Important).

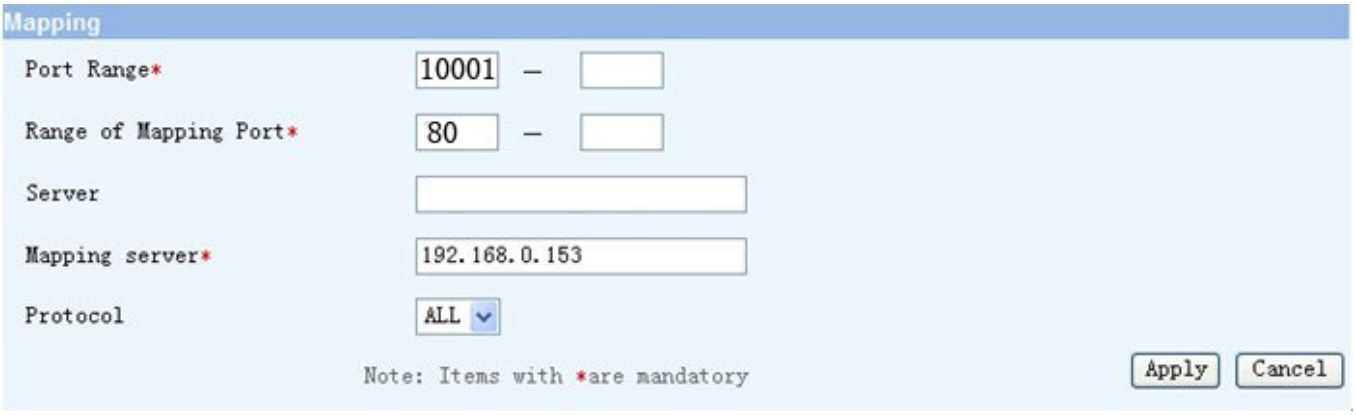
Port Range: external port range (keep the 2nd as blank if just single port) e.g. 10001-10005

Range of Mapping Port: internal port range (keep the 2nd as blank if just single port) e.g. 10001-10005

Server: If your sim card of the router get a fix public IP, you can input the public IP here. If your sim card of the router gets a dynamic public IP, please DO NOT input.

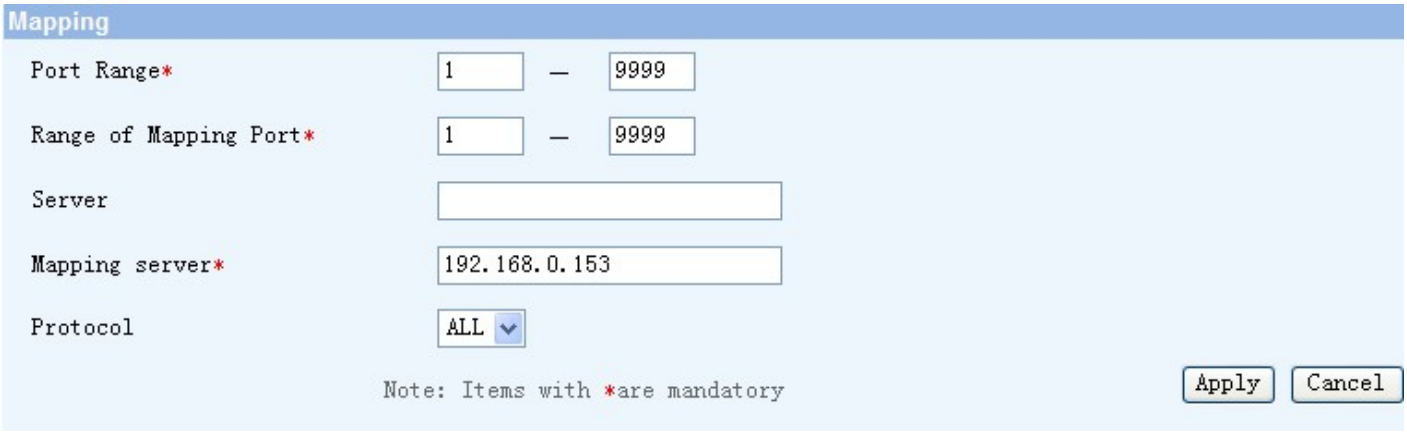
Mapping server: the device IP of internal network e.g. 192.168.0.100

For example, if you get an IP camera. The IP camera web access port is 80. And IP camera local IP from the router is 192.168.0.153, and the router public IP is 114.56.41.1, then the setting is as follows.



Then do not forget to click “Apply Button” to save it. Better suggest re-power on the router.
Then you can try at your IE browser, type http:// 114.56.41.1:10001 to visit the IP camera by remotely.

If you don’t know the port of the IP camera, please set as follows,

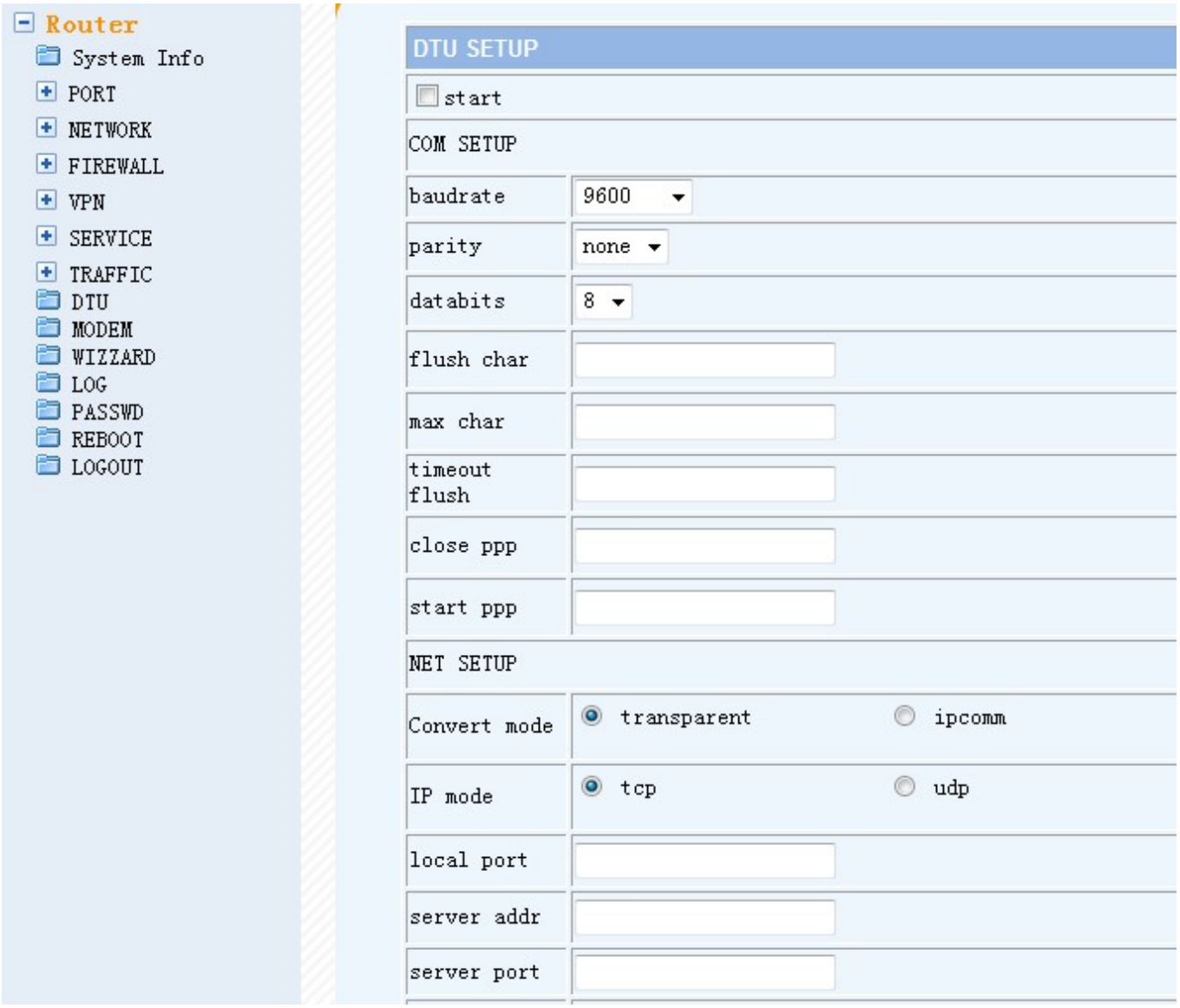


Then do not forget to click “Apply Button” to save it. Better suggest re-power on the router.
Then you can try at your IE browser, type http:// 114.56.41.1:9999 to visit the IP camera by remotely.

Chapter 8

8 DTU Setting (Serial to Cellular Gateway)

Notes: this feature is for H685m series with DTU feature only. Please skip this if your H685m router is without this feature.



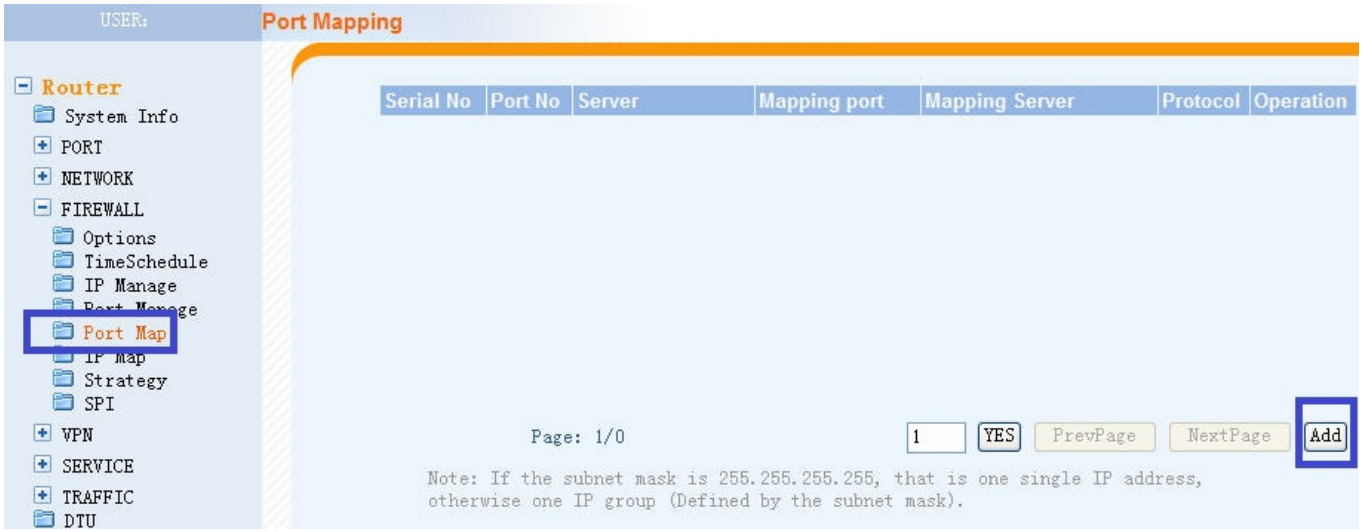
There are two kinds of applications.
One is point-to-point. The other is multi-point-to-centre.
Point-to-point mode: One H685m as server, one H685m as client.
Multi-point-to-centre mode: Centre H685m as server, multi-point H685m as client.
The setting for both applications is the same.

8.1 Configure DTU as server side

1. Tick “start”,
2. Baudrate: select the correct one to match the connected device.
3. Parity: select right one.
4. Databits: select the right one
5. Local port: fill in the right one
6. Server addr: keep blank
7. Server port: keep blank
8. Other parameters: all keep as default. If blank please keep blank.

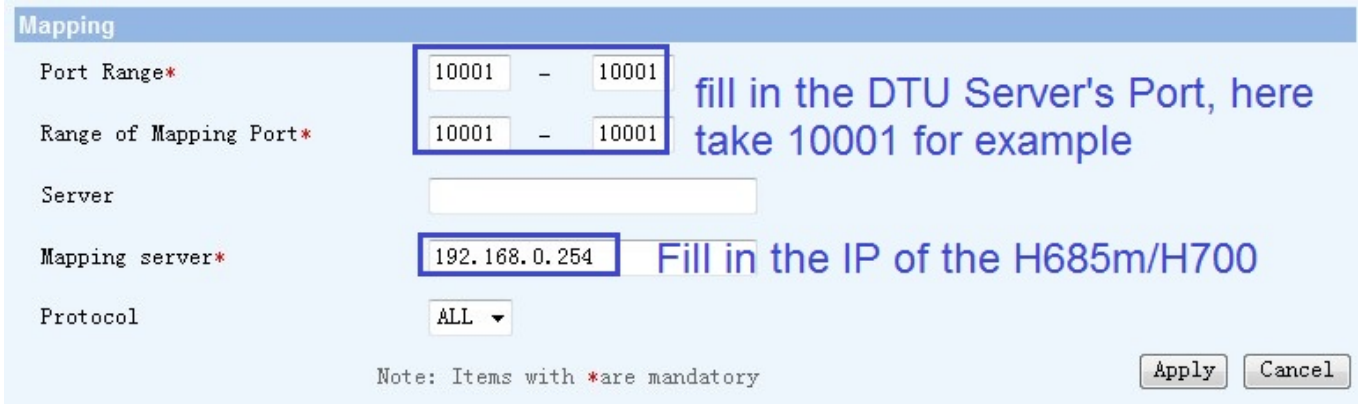
Configure the Port Forwarding feature for H685m.

Step 1)



Step 2)

Click *Apply Button* to start the setting. It will show the following picture.



Fill in the related parameters.

Serial No	Port No	Server	Mapping port	Mapping Server	Protocol	Operation
1	10001-10001		10001-10001	192.168.0.254	all	Modify Delete

8.2 Configure DTU as Client side

1. Tick “start”,
2. Baudrate: select the correct one to match the connected device.
3. Parity: select right one.
4. Databits: select the right one
5. Local port: keep blank
6. Server addr: fill in the right one (Be public IP or domain name if the server has DDNS)
7. Server port: fill in the right one
8. Other parameters: all keep as default. If blank please keep blank.

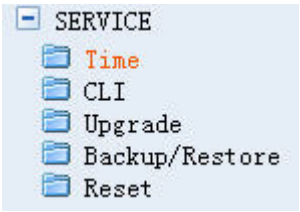
For details of DTU setting, please contact us for further support.

Chapter 9

9 Other Setting

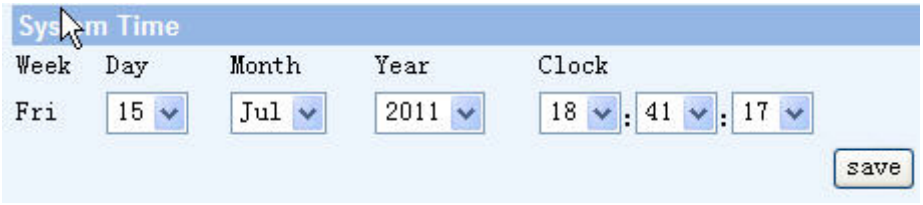
9.1 Time Setting

Click “Server--Time”



There are two options.

A. System Time



Here please set the correct right time. And router will be the time server.

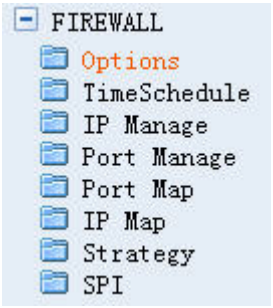
All the PC/Device connected to the router will get updated time from the router.

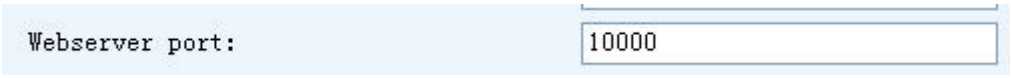
B. Time Server

Click “Enable”, and fill in the correct Hostname/Address, and choose the Time Zone. Then click “Apply” button. At this mode, the router will get the updated time from the internet time server.

9.2 Web Port Setting

Click “Firewall--Options”





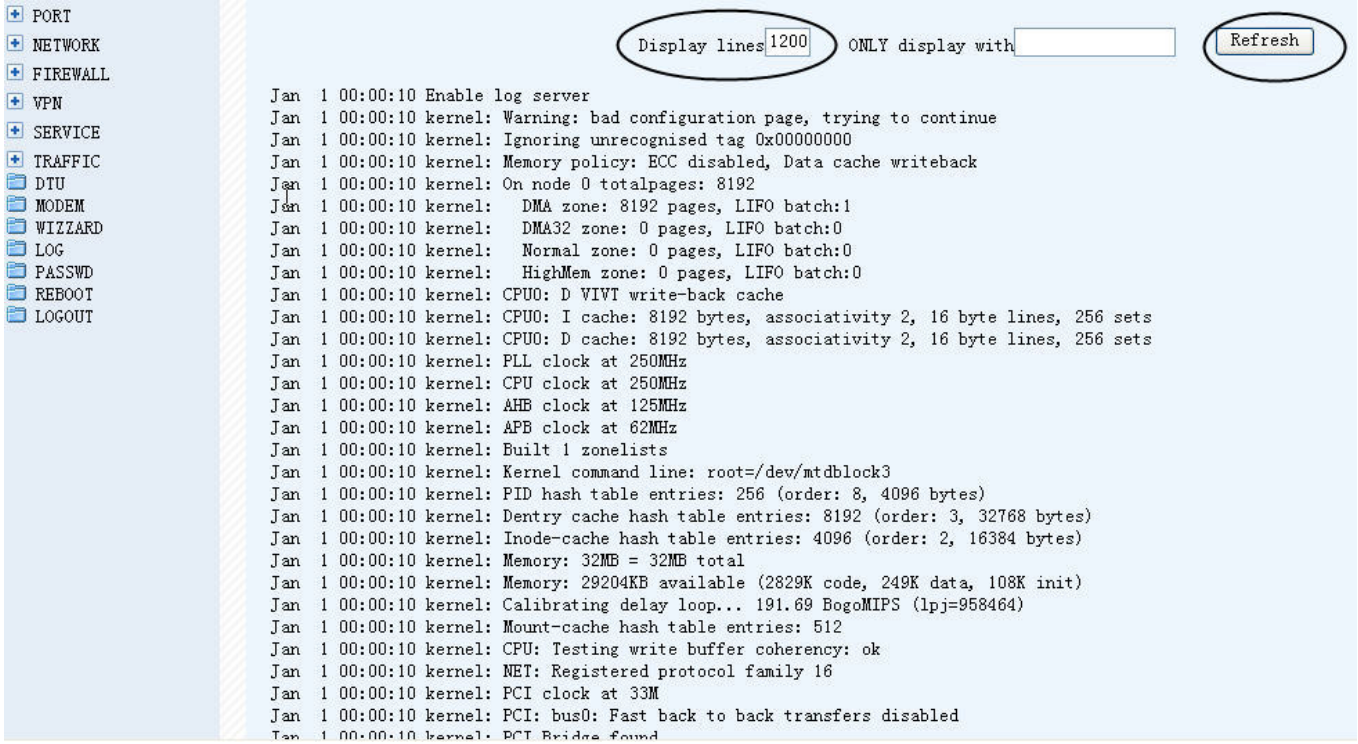
At “Webserver port” : fill in the port you want. Then click “Apply” button.

9.3 Sys Log Setting

A. Local Sys log settings:

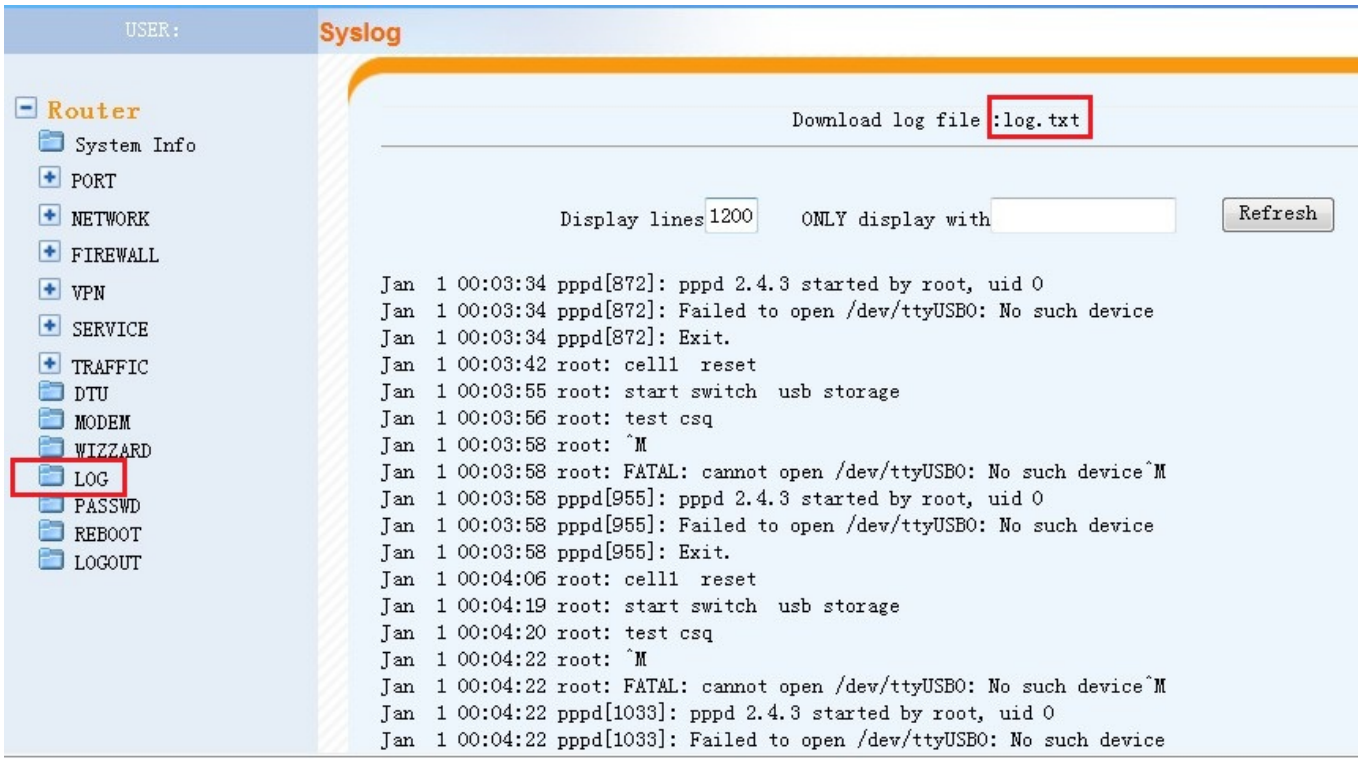
Router—Log

Default display lines is 20. You can input 1200 maximum to show more info.


PORT
NETWORK
FIREWALL
VPN
SERVICE
TRAFFIC
DTU
MODEM
WIZZARD
LOG
PASSWD
REBOOT
LOGOUT
Display lines 1200
ONLY display with
Refresh
Jan 1 00:00:10 Enable log server
Jan 1 00:00:10 kernel: Warning: bad configuration page, trying to continue
Jan 1 00:00:10 kernel: Ignoring unrecognised tag 0x00000000
Jan 1 00:00:10 kernel: Memory policy: ECC disabled, Data cache writeback
Jan 1 00:00:10 kernel: On node 0 totalpages: 8192
Jan 1 00:00:10 kernel: DMA zone: 8192 pages, LIFO batch:1
Jan 1 00:00:10 kernel: DMA32 zone: 0 pages, LIFO batch:0
Jan 1 00:00:10 kernel: Normal zone: 0 pages, LIFO batch:0
Jan 1 00:00:10 kernel: HighMem zone: 0 pages, LIFO batch:0
Jan 1 00:00:10 kernel: CPU0: D VIVT write-back cache
Jan 1 00:00:10 kernel: CPU0: I cache: 8192 bytes, associativity 2, 16 byte lines, 256 sets
Jan 1 00:00:10 kernel: CPU0: D cache: 8192 bytes, associativity 2, 16 byte lines, 256 sets
Jan 1 00:00:10 kernel: PLL clock at 250MHz
Jan 1 00:00:10 kernel: CPU clock at 250MHz
Jan 1 00:00:10 kernel: AHB clock at 125MHz
Jan 1 00:00:10 kernel: APB clock at 62MHz
Jan 1 00:00:10 kernel: Built 1 zonelists
Jan 1 00:00:10 kernel: Kernel command line: root=/dev/mtdblock3
Jan 1 00:00:10 kernel: PID hash table entries: 256 (order: 8, 4096 bytes)
Jan 1 00:00:10 kernel: Dentry cache hash table entries: 8192 (order: 3, 32768 bytes)
Jan 1 00:00:10 kernel: Inode-cache hash table entries: 4096 (order: 2, 16384 bytes)
Jan 1 00:00:10 kernel: Memory: 32MB = 32MB total
Jan 1 00:00:10 kernel: Memory: 29204KB available (2829K code, 249K data, 108K init)
Jan 1 00:00:10 kernel: Calibrating delay loop... 191.69 BogoMIPS (lpj=958464)
Jan 1 00:00:10 kernel: Mount-cache hash table entries: 512
Jan 1 00:00:10 kernel: CPU: Testing write buffer coherency: ok
Jan 1 00:00:10 kernel: NET: Registered protocol family 16
Jan 1 00:00:10 kernel: PCI clock at 33M
Jan 1 00:00:10 kernel: PCI: bus0: Fast back to back transfers disabled

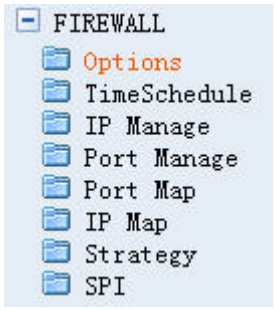
B. Download the log file into a TXT file.

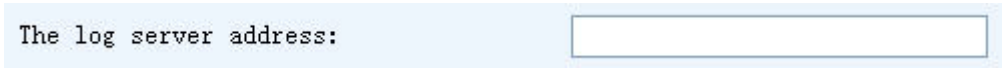
Users can click “log.txt” to export the sys log into a file named “log.txt”. If it is no working while left click “log.txt”, please right click and “Save as…” to save it.


USER:
Syslog
Router
System Info
PORT
NETWORK
FIREWALL
VPN
SERVICE
TRAFFIC
DTU
MODEM
WIZZARD
LOG
PASSWD
REBOOT
LOGOUT
Download log file :log.txt
Display lines 1200
ONLY display with
Refresh
Jan 1 00:03:34 pppd[872]: pppd 2.4.3 started by root, uid 0
Jan 1 00:03:34 pppd[872]: Failed to open /dev/ttyUSB0: No such device
Jan 1 00:03:34 pppd[872]: Exit.
Jan 1 00:03:42 root: cell1 reset
Jan 1 00:03:55 root: start switch usb storage
Jan 1 00:03:56 root: test csq
Jan 1 00:03:58 root: ^M
Jan 1 00:03:58 root: FATAL: cannot open /dev/ttyUSB0: No such device^M
Jan 1 00:03:58 pppd[955]: pppd 2.4.3 started by root, uid 0
Jan 1 00:03:58 pppd[955]: Failed to open /dev/ttyUSB0: No such device
Jan 1 00:03:58 pppd[955]: Exit.
Jan 1 00:04:06 root: cell1 reset
Jan 1 00:04:19 root: start switch usb storage
Jan 1 00:04:20 root: test csq
Jan 1 00:04:22 root: ^M
Jan 1 00:04:22 root: FATAL: cannot open /dev/ttyUSB0: No such device^M
Jan 1 00:04:22 pppd[1033]: pppd 2.4.3 started by root, uid 0
Jan 1 00:04:22 pppd[1033]: Failed to open /dev/ttyUSB0: No such device

C. Remote Server setting.

Click “Firewall--Options”





At “The log server address”, fill in the server’s IP address.
This feature normally requires a syslog tool at the server side.
With this feature, the sys log will be record to the server syslog tool.
Please see example at chapter “”

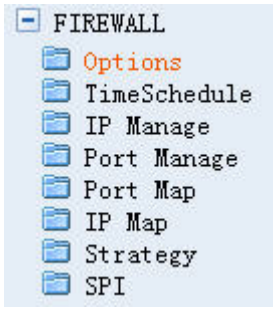
9.4 Reboot Time Setting

The H685m router has the following feature to keep alive:

1) built-in watch dog (automatically, no need set)
2) LCP check during dialing and connected (automatically, no need set)
3) DNS check (need manually set this feature)
4) Reboot automatically (need manually set this feature)

Why need use “reboot” feature? Each machine/device’s performance will be weaker and weaker after it power on. Then in order to keep the router keep the good performance as long as it can, it will automatically reboot to refresh the working. The setting is as follows,

Click “Firewall--Options”



At “The reboot time (hour)”, fill in the hour number.

The value can be 1~23. Recommend value is 12~23.
For example we set is as 12.
A. the router will reboot automatically after every 12 hours to keep the stability performance if we don’t set the

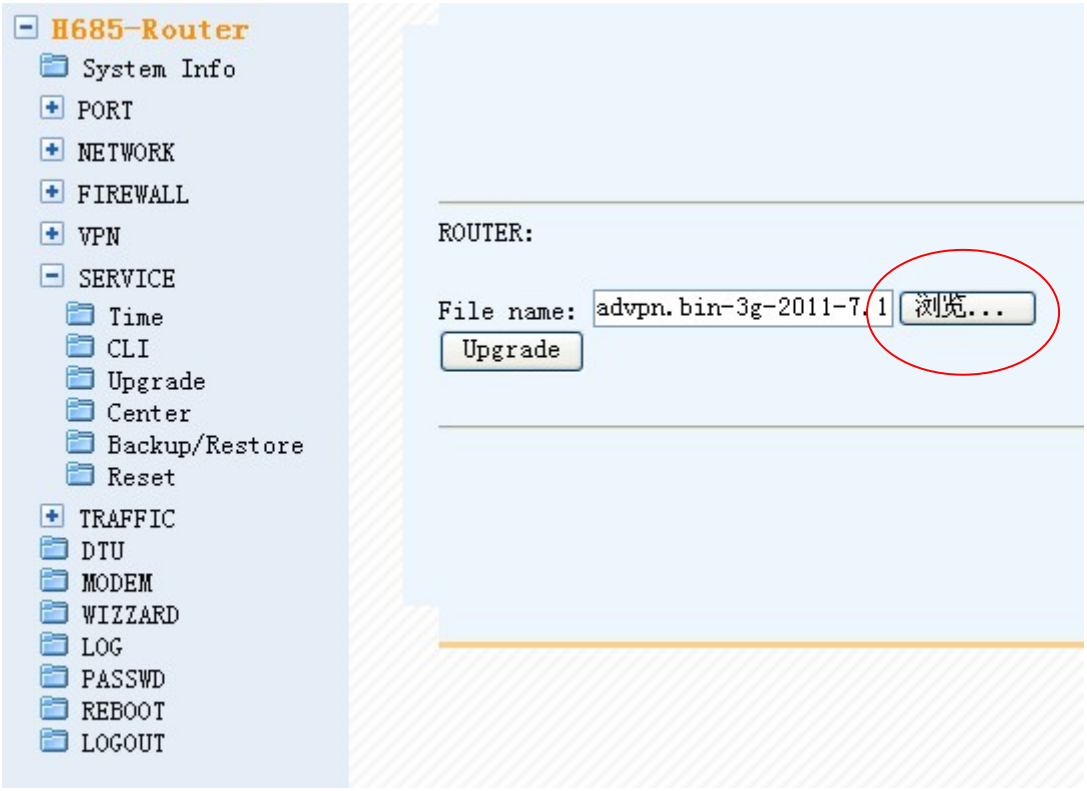
timing server feature.

B. the router will reboot automatically every 12:00 to keep the stability performance if we set the timing server feature.

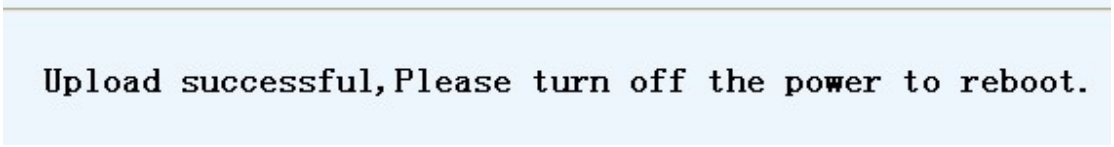
9.5 Firmware upgrade

9.5.1 At internet browser, please enter into the router by http://192.168.0.254:10000

9.5.2 Service—Upgrade—click “浏览” to select the updating file “uploadvpn.bin-3g-2011-7.3new”, click “Upgrade” button to start.



9.5.3 Never touch the router or the PC while the updating is going (the PC display will not show the status of updating). It will just show the following picture after finishing.



9.5.4 Power off the router, then re-power on the router.

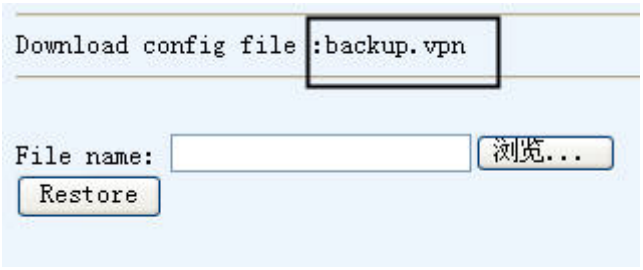
9.5.5 Reset the router (please refer chapter 4.4)

9.5.6 Re-config the router to make the router work.

9.6 Parameters Backup and Restore

9.6.1 Backup

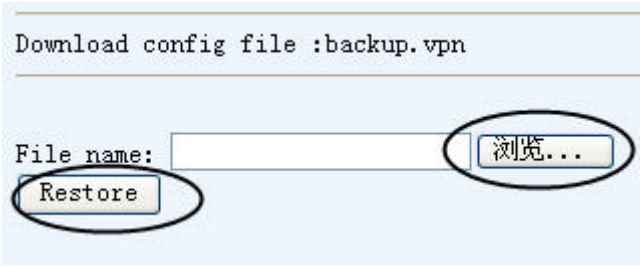
Service—Backup/Restore—click “backup.vpn” to save it.



9.6.2 Restore

Service—Backup/Restore—click

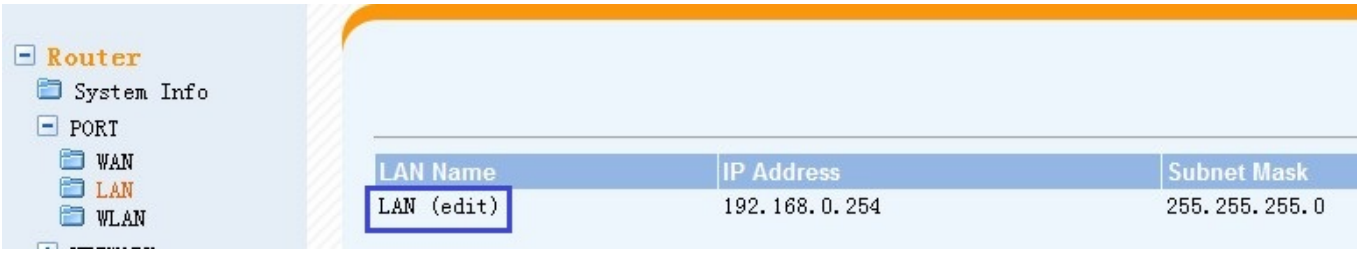
and select the backup file.

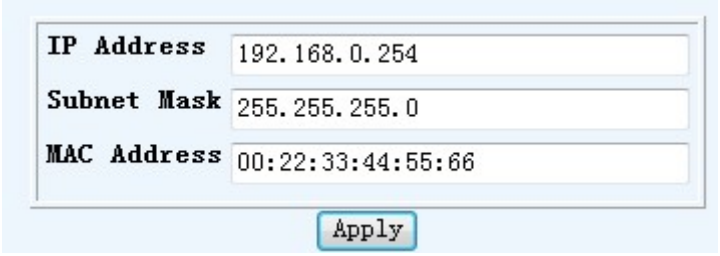


Then click “Restore” button to restore it.

9.7 LAN Setting

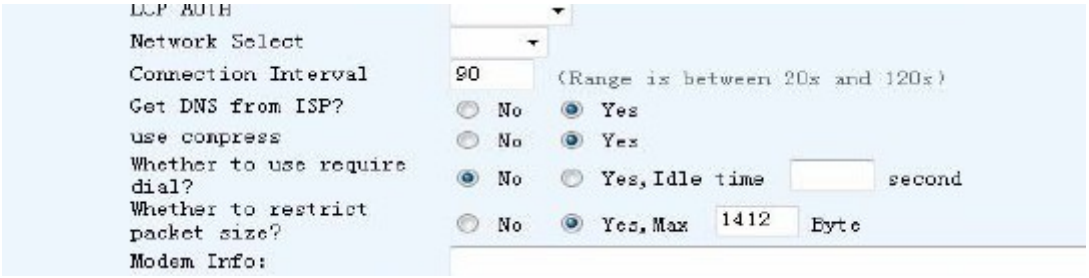
With LAN Setting, you can modify the router’s IP Address, Subnet Mask and MAC address.
Step 1) “Router—PORT--LAN”, click “LAN (edit)”





After changed, please click “Apply” button and reboot the router.

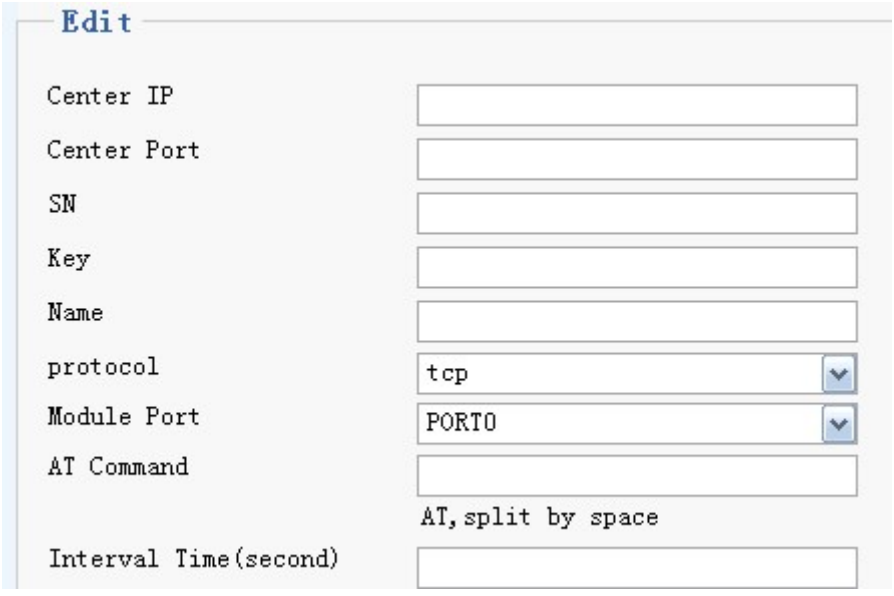
9.8 Customized dialup (Dialup via request)



At WAN port, please choose “Yes” at “Whether to use require dial”, and fill in the Idel time you want the router to disconnect after the time. For example, you want the router dialup once there is data transfer, and 300 seconds to disconnect from the network. Fill in 300 at “Idle time”

9.8 Service – Centre “heart-beat pack”

H685m web—SERVICE—Centre,



Center IP: fill in the centre’s IP or domain name.
Center Port: fill in the centre’s port
SN, Key, Name: fill in the content and the H685m router will send the full character to centre.
For example, we fill like the following,
SN: 1
Key: 2
Name: 3a
H685m will send 123a to center.

If we just fill the SN and keep Key & Name blank, H685m will just send SN’s content to centre.
For example,
SN: 12

Key: keep as blank
Name: keep as blank
H685m will send 12 to center.

Protocol: keep as default
Module port: keep as default
At command: keep as default

Interval Time (second): fill in the interval time.
For example, we fill in number 30. H685m will send the heart-beat pack to centre every 30 seconds.

Chapter 10

10 Addenda

10.1 Terminology

Internet	**A network of computer networks which operates world-wide using a common set of communications protocols.**
GPRS	**Short for General Packet Radio Service, a standard for Cellular communications which runs at speeds up to 115 kbps**
SIM	**Subscriber Identity Module – a small rectangular piece of plastic with a layer of copper. It is provided as part of a mobile telephone service.**
ISP:	**Internet Service Provider**
DDNS:	**Dynamic Domain Name Server**

10.2 FAQ

- **Recover Router Configuration**

1. Enter the “web” page, choose the “default and reboot” then can recover the default parameters.
2. Hardware recovers: Power off, shortcut between the RS232 point 2 and point 3, product can be recovered the default parameters in 40’s after power on.

- **Factory Default**

1. Default serial port parameters: 115200, 8, N, 1.
2. Default IP & Web port: 192.168.0.254:10000
3. Default user and password in TELNET: guest
4. Default super password in CONSOLE: router

- **Trouble Shooting**

Ethernet work abnormally:

1. Please run “ARP –D” if ping abnormally.
2. Please set up Ethernet interface in 10M, half model if Ethernet connection unstable.
3. Invalid in new IP cause by forgetting save the change in time, please sign in default IP and save the change after enter a new IP.

- **Others**

1) Please check the following items in “status” of the “appear” menu.
2) The character string of the card number is beginning for “898603, it shows the CDMA UIM card had been inserted.
3) The value of the signal strength is between 15-31. It is better more than 20; please connect the local China Unicom for the weak signal less than 15.
4) Confirm owing fee, you can get the information of “Please check data network or your outlay” in terminator. It shows the system can’t build the connection with GPRS/CDMA cause by the weak signal or owing fee.
5) Please check if set in a model of “short connect, invalid detail automatic”.
6) Please download the data of product by using “debug ppp all” command in terminator, then contact with our technocrat.

- **Cannot Power on**

1) check the power supplier adapter is okay. You can try another power adapter.
2) Check the power interface is right connected to the router

- **Cannot dialup**

1) check the sim card is right inserted
2) check if the sim card has enough balance with data business
3) check if the signal is good enough in the area
4) check if the configuration is right.
5) check the APN or string is right configured. Check the connection interval value is between 90~120s from our experience.

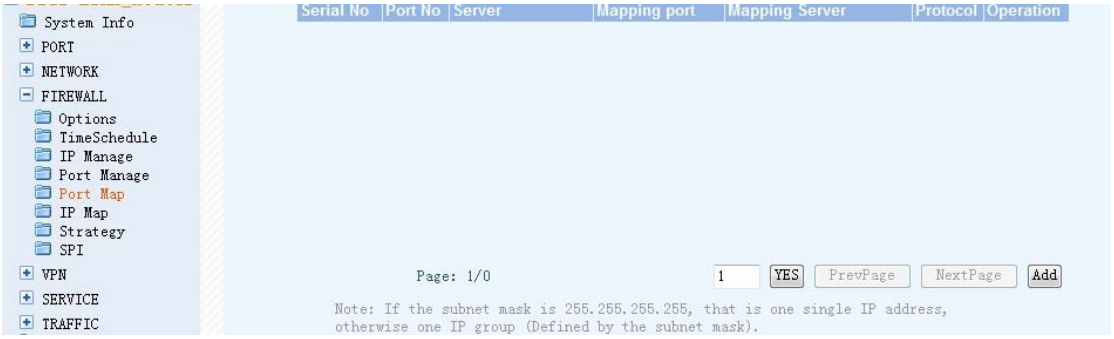
Chapter 11

11 Typical Setting & Test

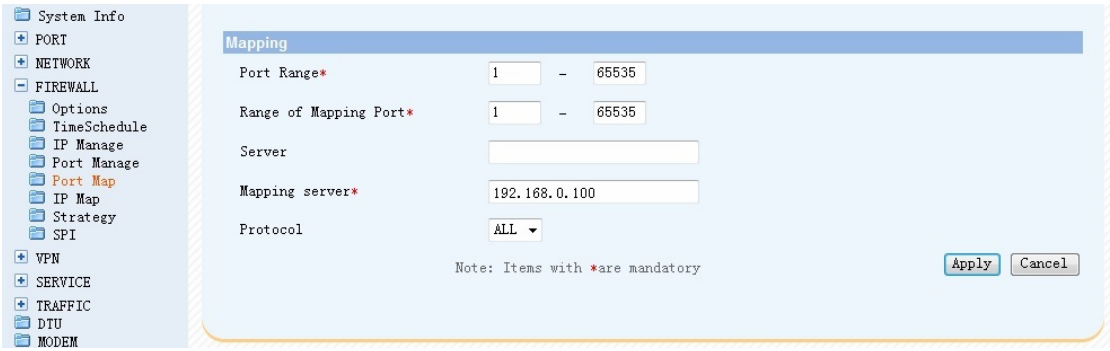
11.1 DMZ feature

If you need DMZ feature, you can use NAT/NAPT instead.

Step 1. FIREWALL—Port Map

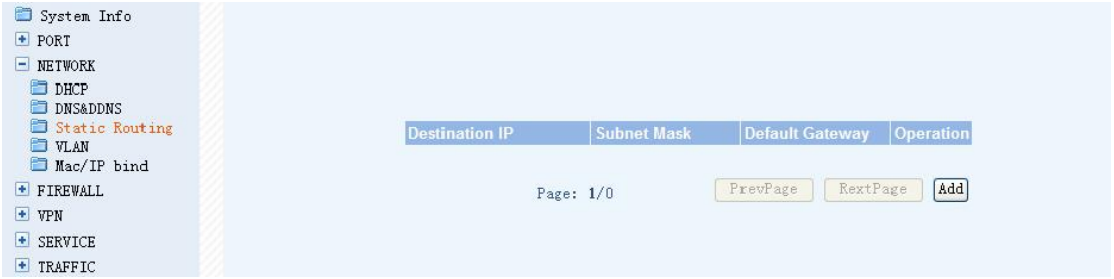


Step 2. Open all port 1~65535 as follows, Mapping Server fill in 192.168.110.1, and click Apply button.



11.2 Static Routing Setting

Step 1. NETWORK—Static Routing

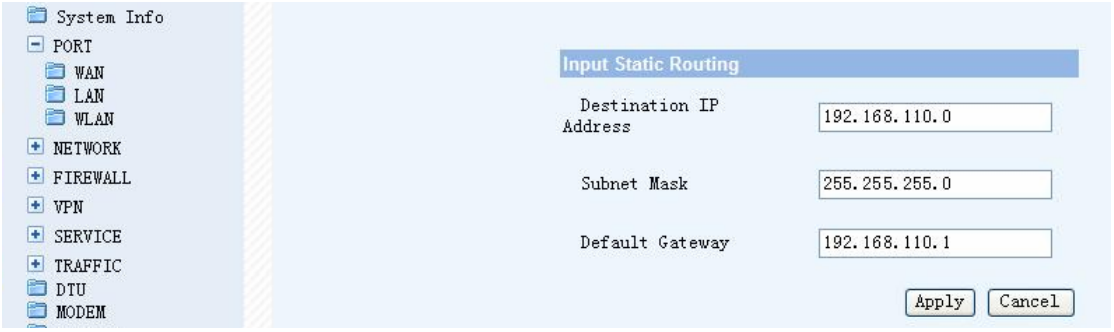


Step 2. Click *Add* button,

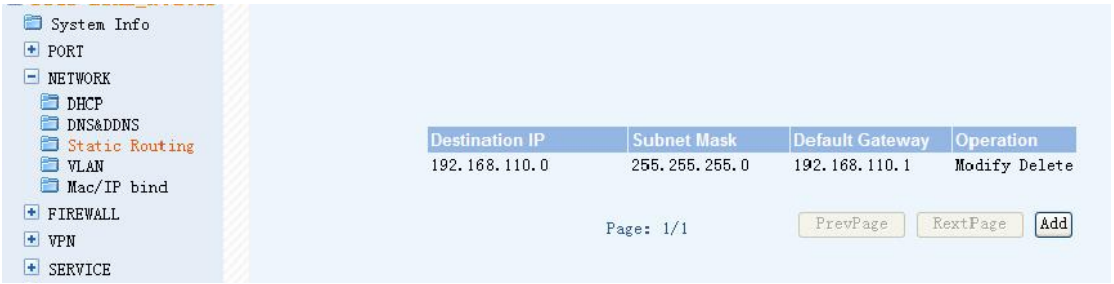
Destination IP Address: Fill in the next stage's IP Range

Subnet Mask: Fill in subnet mask.

Default Gateway: Fill in router's gateway IP.



It will show the following if creating is successful.



11.3 PPTP setting sample

Notes: before using PPTP, please make sure the H685m router can be online. H685m router cannot work in PPTP if cannot be online.

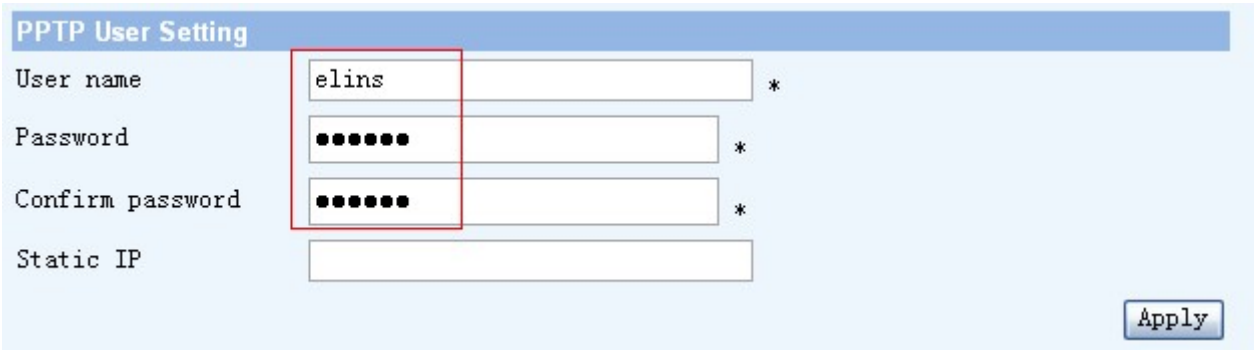
Also please make sure the PPTP client can also get online, otherwise it will not connect the PPTP server.

Normally, we recommend users take CISCO VPN Server as server VPN, and take our H685m router as client. However, we take H685m router as VPN Sever and VPN Client both for example.

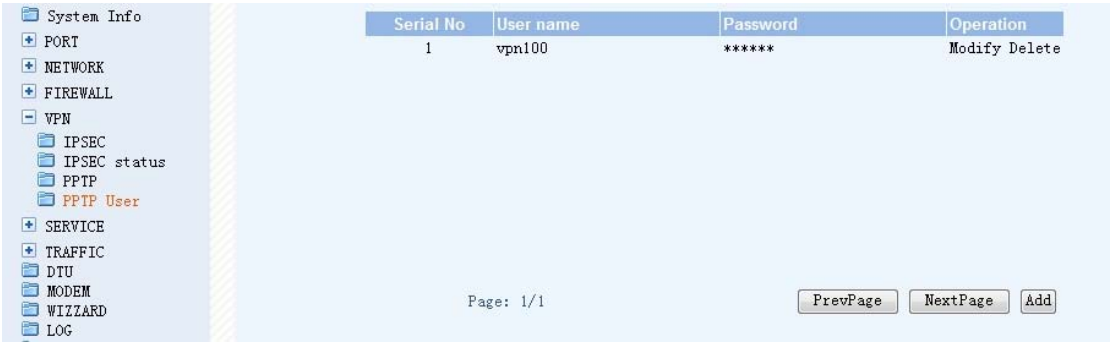
A. PPTP Server side setup.

Step 1) VPN—PPTP User

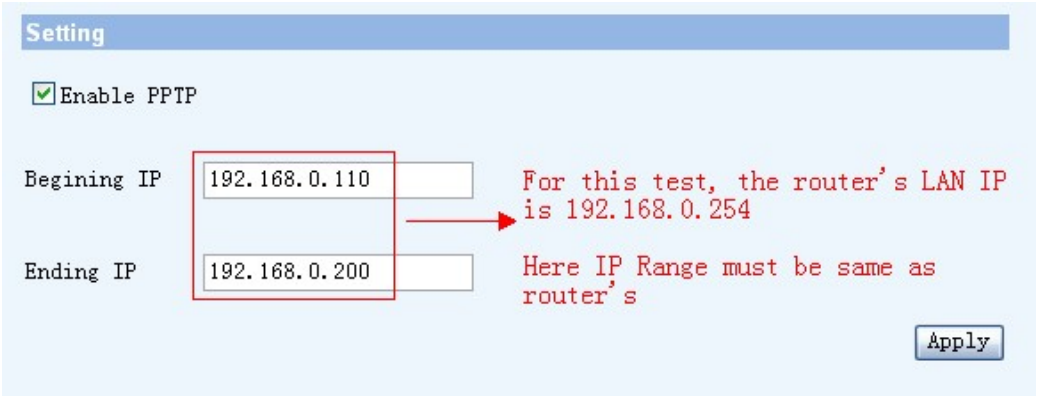
Step 2) Fill in *User name*, *Password* and *Confirm password*, click Apply button to save.



Step 3) It will show the following if the user creating is successful.



Step 4) VPN—PPTP, click *Enable PPTP*, and fill in *Beginning IP* and *Ending IP,* which will be assigned to PPTP client. The Beginning IP and Ending IP range must be the same range with the router. For example, the router's IP is 192.168.0.254, then you can put *Beginning IP* as 192.168.0.110 and *Ending IP* as 192.168.0.200



After setting, please do not forget click "Apply" button and re-power on the router.

B. PPTP Client side setup.

There are two types. Users can take PC VPN dialup as client. Also we can take H685m router as client. We test it one by one. Users can make your own choice.

B1. PC VPN dialup as VPN client.

Step 1) Get the PPTP server's WAN IP. Here we get the H685m PPTP server WAN IP is 113.115.216.52, at the PC, try to ping it and check if it's through. If cannot through, please check if your ISP block the IP, or the PPTP server get some problem.

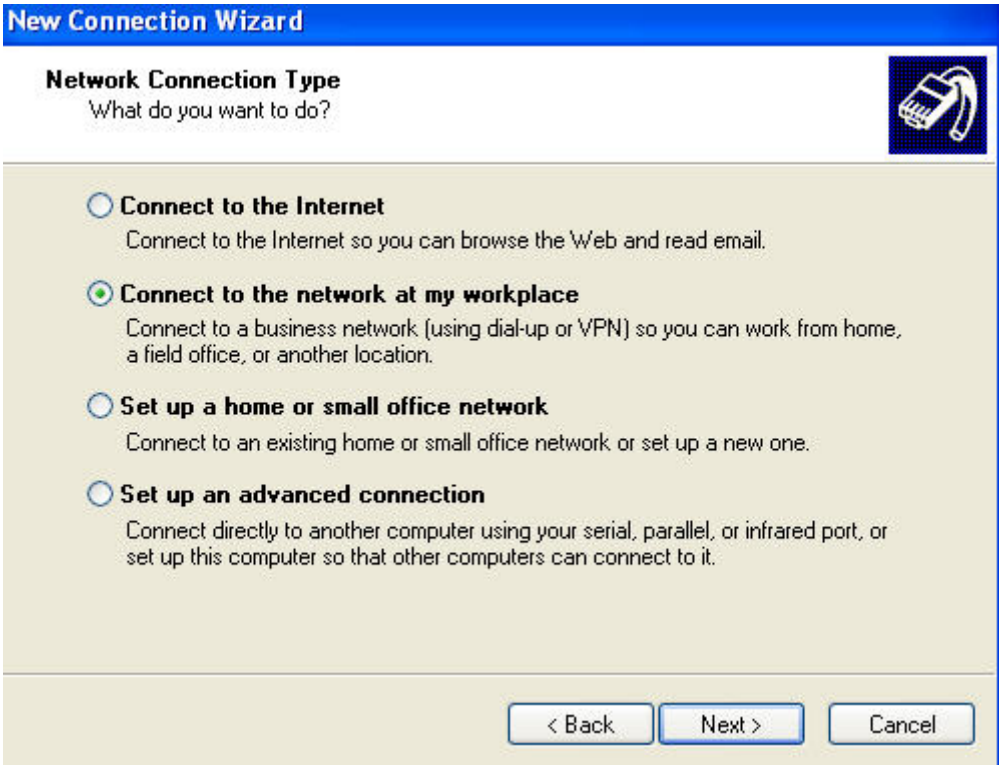
Step 2) Set up the VPN dialing at the PC, click “Start—Control Panel”, enter

,

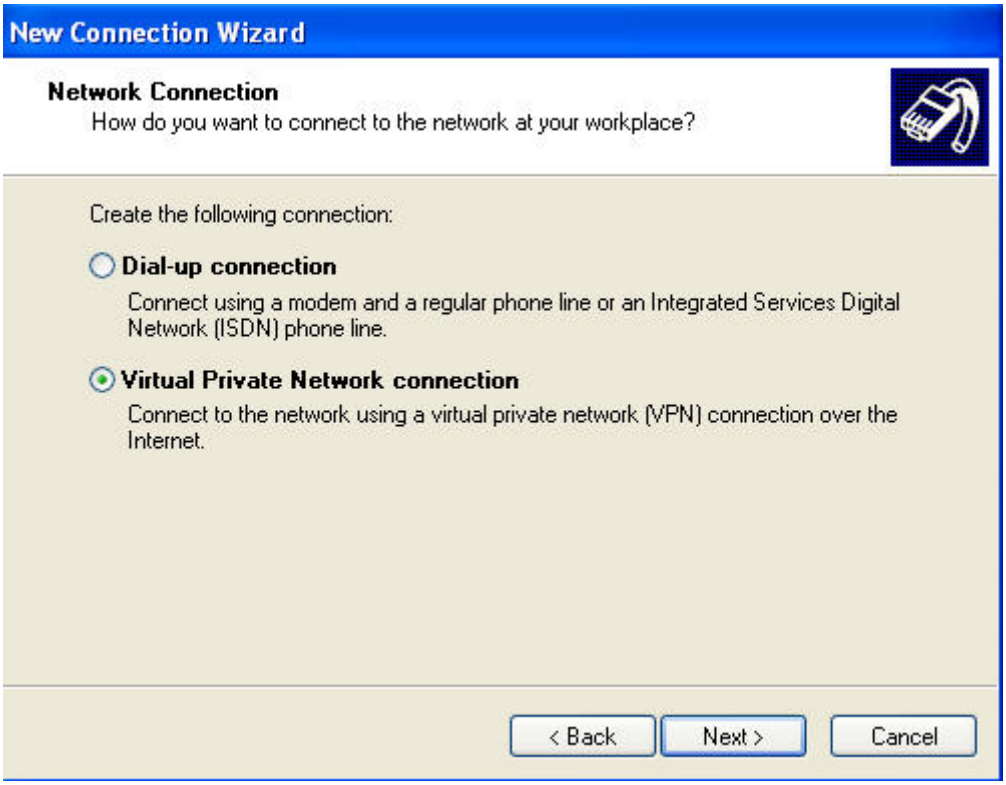
Step 3) click “Create a new connection”,

New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
Connect to the Internet.
Connect to a private network, such as your workplace network.
Set up a home or small office network.
To connect to a wireless network, view wireless networks in range.
To continue, click Next.
< Back
Next >
Cancel

Step 4) Click “Next” button,


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

Step 5) Choose “Connect to the network at my workplace”, and “Next” button,


New Connection Wizard
Network Connection
How do you want to connect to the network at your workplace?
Create the following connection:
Dial-up connection
Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line.
Virtual Private Network connection
Connect to the network using a virtual private network (VPN) connection over the Internet.
< Back
Next >
Cancel

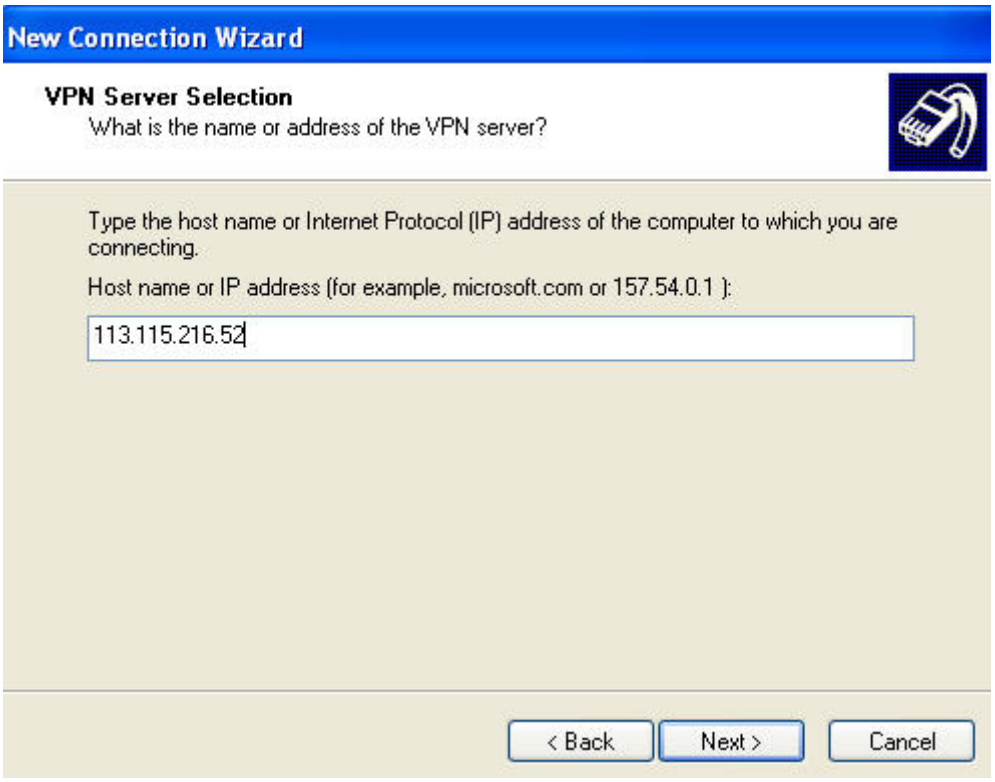
Step 6) Choose “Virtual Private Network connection”, and “Next” button,

New Connection Wizard
Connection Name
Specify a name for this connection to your workplace.
Type a name for this connection in the following box.
Company Name
H685m PPTP Test
For example, you could type the name of your workplace or the name of a server you will connect to.
< Back
Next >
Cancel

Step 7) Input the “Company Name”. Here we put “H685m PPTP Test” for test, click “Next” button,

New Connection Wizard
Public Network
Windows can make sure the public network is connected first.
Windows can automatically dial the initial connection to the Internet or other public network, before establishing the virtual connection.
Do not dial the initial connection.
Automatically dial this initial connection:
< Back
Next >
Cancel

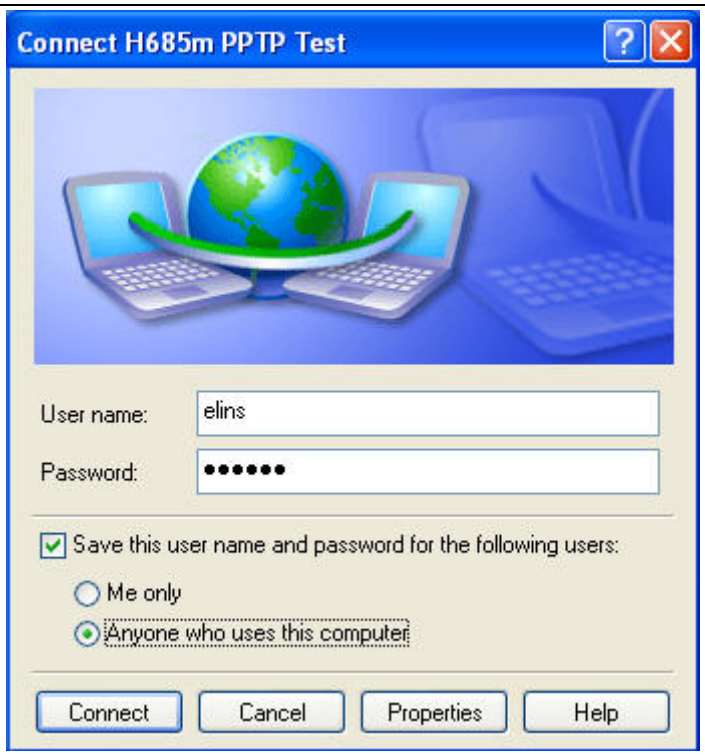
Step 8) If the client PC is connected to internet (or your private network) already, please choose “Do not dial the initial connection”. If the client PC is not connected to internet (or your private network), please choose “Automatically dial this initial connection” and select the right connection. Here our test client PC is with DSL connection already, so we just choose “Do not dial the initial connection”, and click “Next” button,


New Connection Wizard
VPN Server Selection
What is the name or address of the VPN server?
Type the host name or Internet Protocol (IP) address of the computer to which you are connecting.
Host name or IP address (for example, microsoft.com or 157.54.0.1):
113.115.216.52
< Back
Next >
Cancel

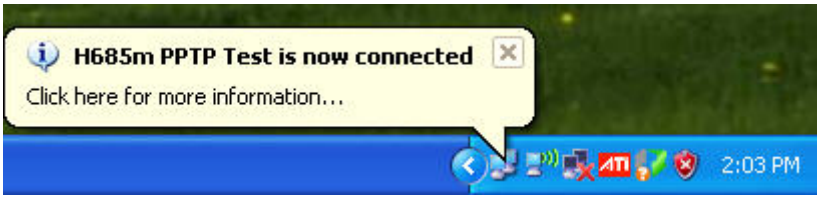
Step 9) input the PPTP server's WAN IP, and click "Next" button,

New Connection Wizard
Completing the New Connection Wizard
You have successfully completed the steps needed to create the following connection:
H685m PPTP Test
• Share with all users of this computer
The connection will be saved in the Network Connections folder.
Add a shortcut to this connection to my desktop
To create the connection and close this wizard, click Finish.
< Back
Finish
Cancel

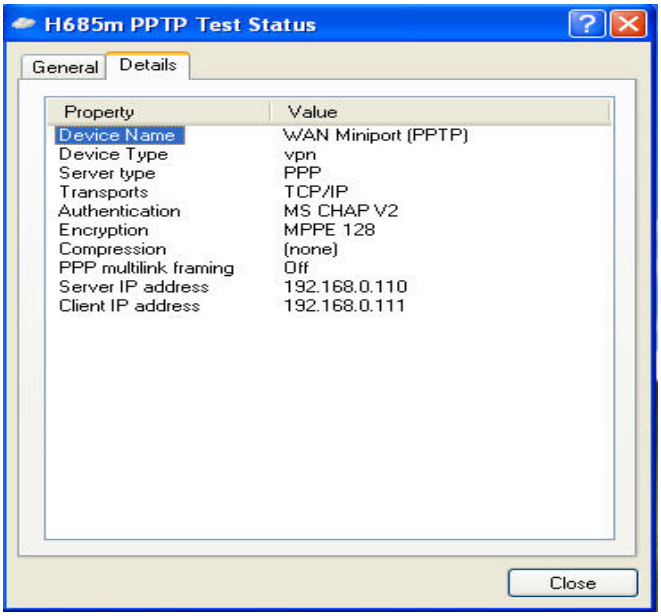
Step 10) You can choose "Add a shortcut to this connection to my desktop", and click "Next" button,



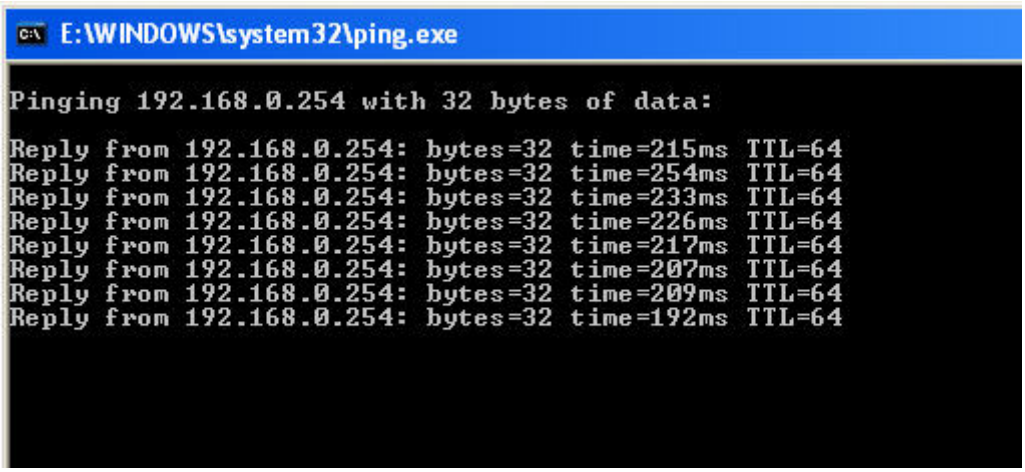
Step 11) Input the PPTP user name and password, then click “Connect” button,



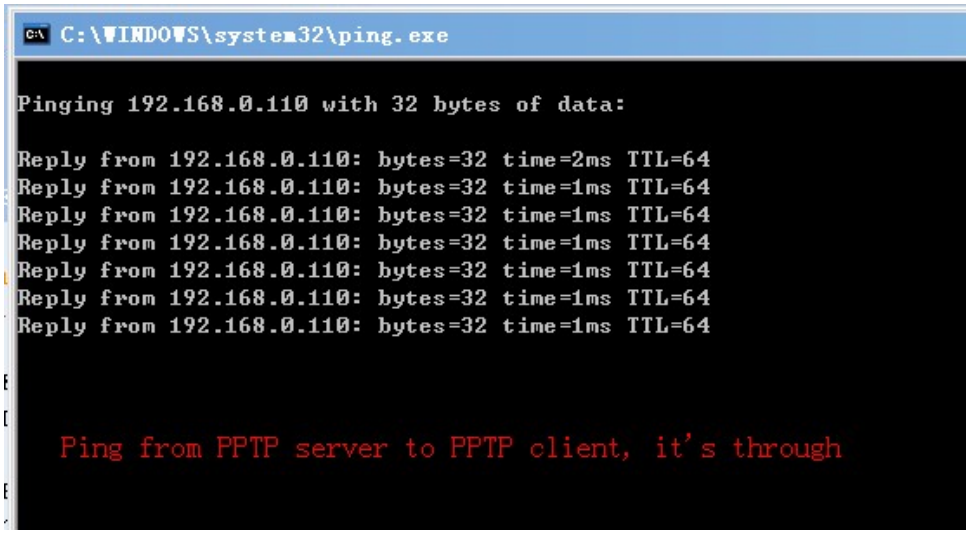
Step 12) Once it’s connected, it will show above. And the client PC will get a assigned PPTP IP from PPTP server. Here it gets an IP of 192.168.0.110.



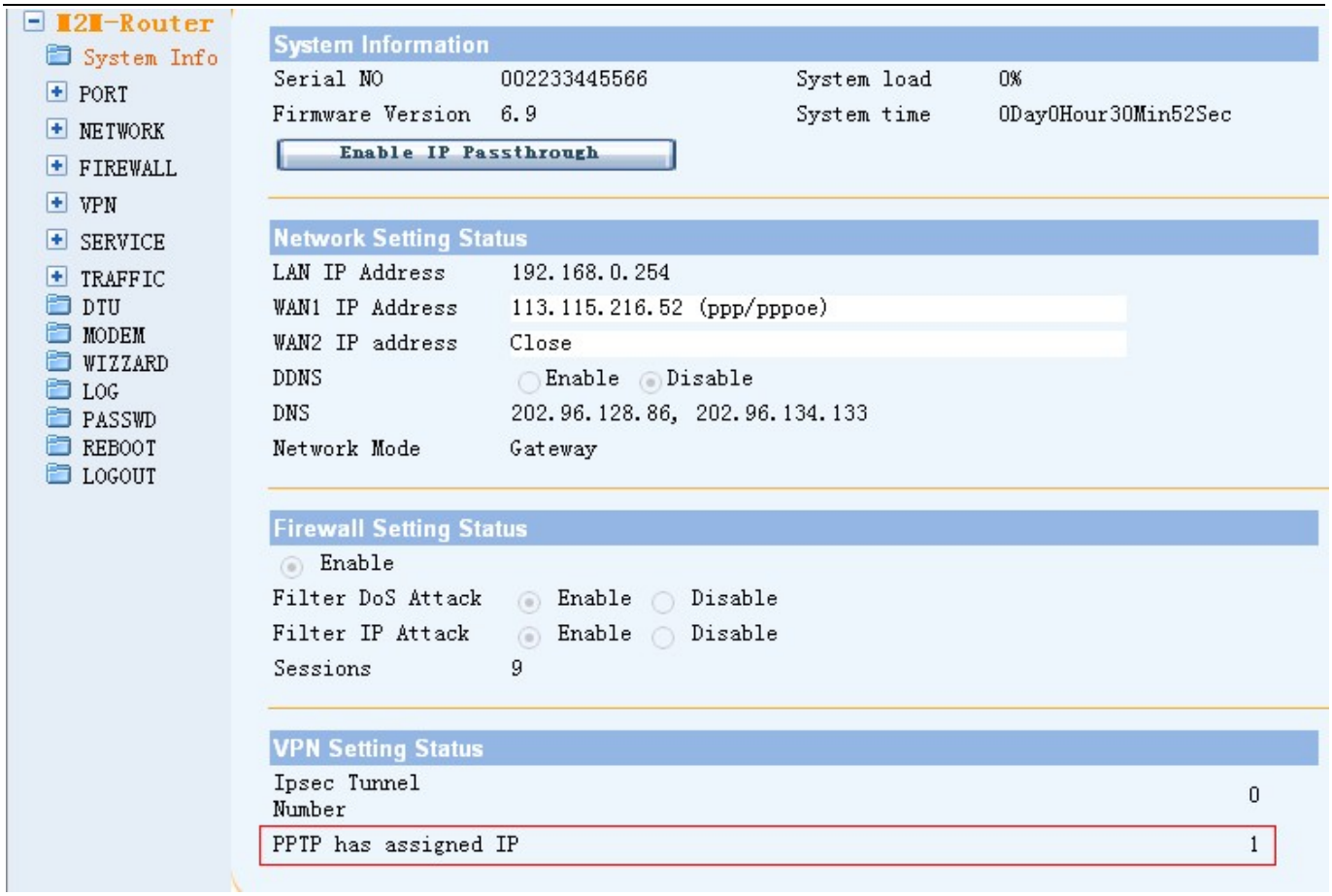
Step 13) Try to ping the PPTP server’s LAN IP 192.168.0.254 from the PPTP client, it’s through.


E:\WINDOWS\system32\ping.exe
Pinging 192.168.0.254 with 32 bytes of data:
Reply from 192.168.0.254: bytes=32 time=215ms TTL=64
Reply from 192.168.0.254: bytes=32 time=254ms TTL=64
Reply from 192.168.0.254: bytes=32 time=233ms TTL=64
Reply from 192.168.0.254: bytes=32 time=226ms TTL=64
Reply from 192.168.0.254: bytes=32 time=217ms TTL=64
Reply from 192.168.0.254: bytes=32 time=207ms TTL=64
Reply from 192.168.0.254: bytes=32 time=209ms TTL=64
Reply from 192.168.0.254: bytes=32 time=192ms TTL=64

Step 14) Try to ping the IP of PPTP client from PPTP server, it should ping through.


C:\WINDOWS\system32\ping.exe
Pinging 192.168.0.110 with 32 bytes of data:
Reply from 192.168.0.110: bytes=32 time=2ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Reply from 192.168.0.110: bytes=32 time=1ms TTL=64
Ping from PPTP server to PPTP client, it's through

Both side can ping through, which means test is successful. And at the H685m PPTP server router, it will display the connected PPTP client numbers.



B2. H685m router as VPN client

Step 1) make H685m client router to be online. (Get WAN public IP or private network IP)

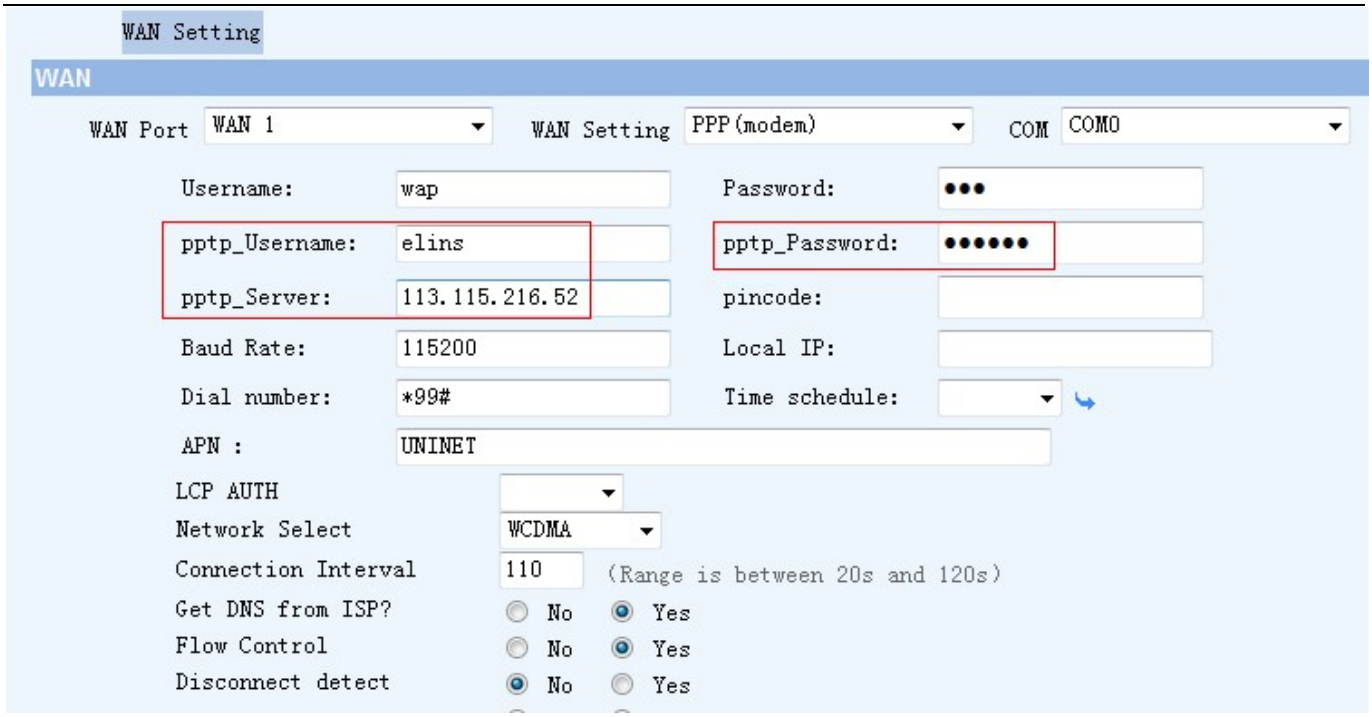
Step 2) at H685m router web, “PORT—WAN”

Fill in the following:

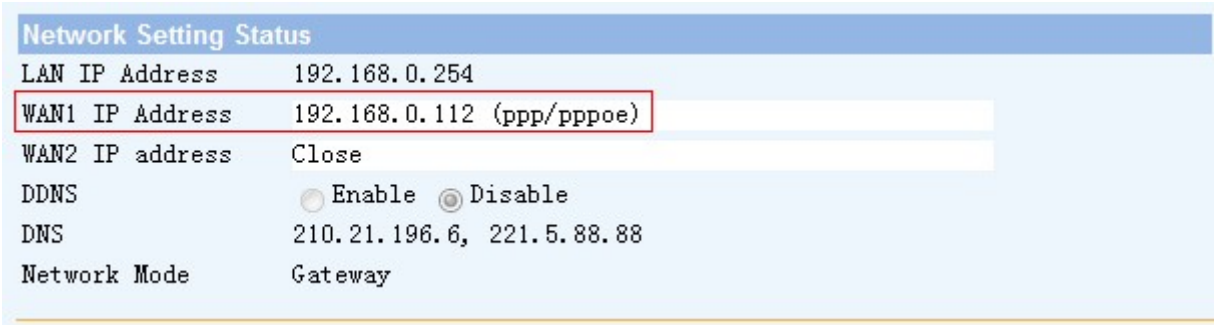
pptp_Username: it’s from the PPTP server, here it’s “elins”

pptp_Password: it’s from the PPTP server, here it’s “123456”

pptp_Server: fill in PPTP Server’s WAN IP or Domain. (The WAN IP is the obtained public IP from 3G/GSM networks. Must be public IP or Privacy Network’s IP), here it’s “113.115.216.52”

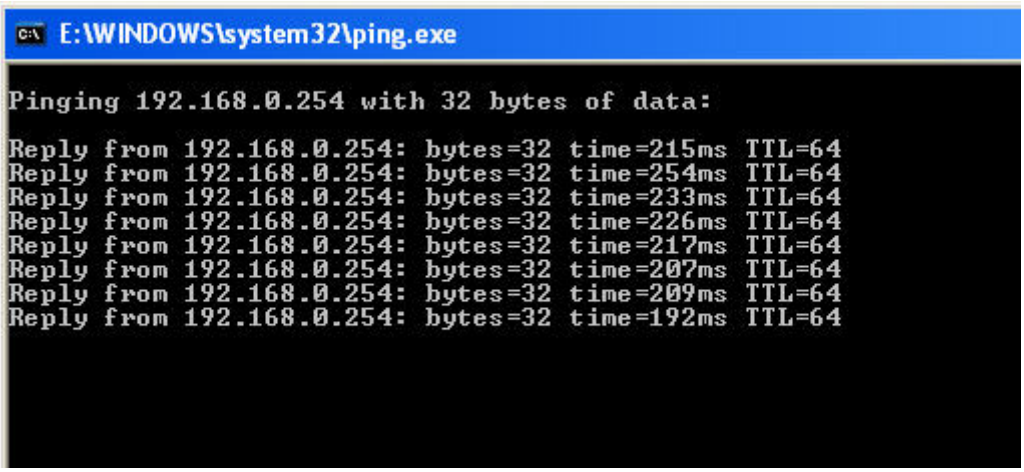


Step 3) Click "SAVE" button, and re-power on the router, then it will connect the PPTP Server after to be online.



Step 4) It will get a assigned IP from the PPTP server. Here it gets 192.168.0.112.

Step 5) Try ping the PPTP server LAN IP from PPTP client. It should be through.


E:\WINDOWS\system32\ping.exe
Pinging 192.168.0.254 with 32 bytes of data:
Reply from 192.168.0.254: bytes=32 time=215ms TTL=64
Reply from 192.168.0.254: bytes=32 time=254ms TTL=64
Reply from 192.168.0.254: bytes=32 time=233ms TTL=64
Reply from 192.168.0.254: bytes=32 time=226ms TTL=64
Reply from 192.168.0.254: bytes=32 time=217ms TTL=64
Reply from 192.168.0.254: bytes=32 time=207ms TTL=64
Reply from 192.168.0.254: bytes=32 time=209ms TTL=64
Reply from 192.168.0.254: bytes=32 time=192ms TTL=64

Step 6) Try ping the PPTP client assigned IP from PPTP server, it should not be through.
With the test result above, the PPTP test is successful.

Notes for users:

For PPTP VPN, if client is PC, the PPTP server can ping through PPTP client after PPTP is connected.

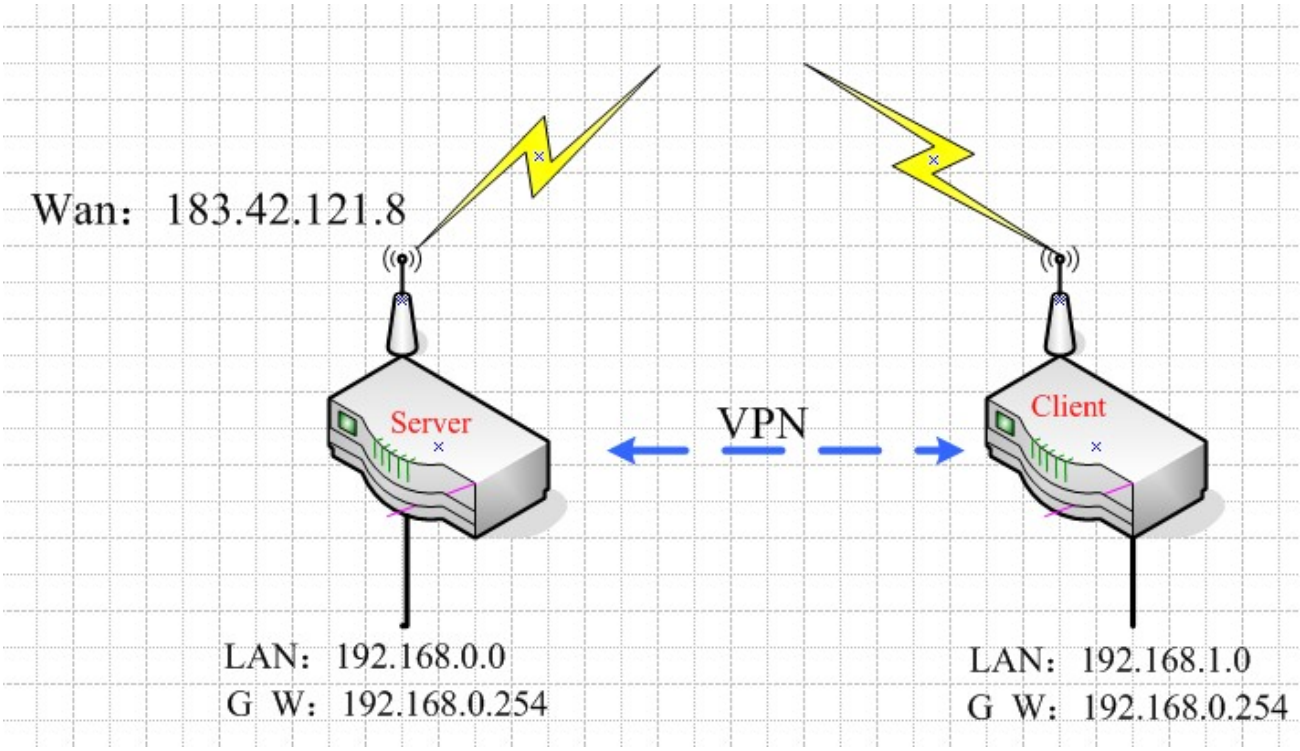
But if client is router, the PPTP server cannot ping through PPTP client after the PPTP is connected.

11.4 IPSec setting sample

Notes: before using IPSec, please make sure the H685m router can be online. H685m router cannot work in IPSec if cannot be online.

Also please make sure the IPSec client can also get online, otherwise it will not connect the IPsec server.

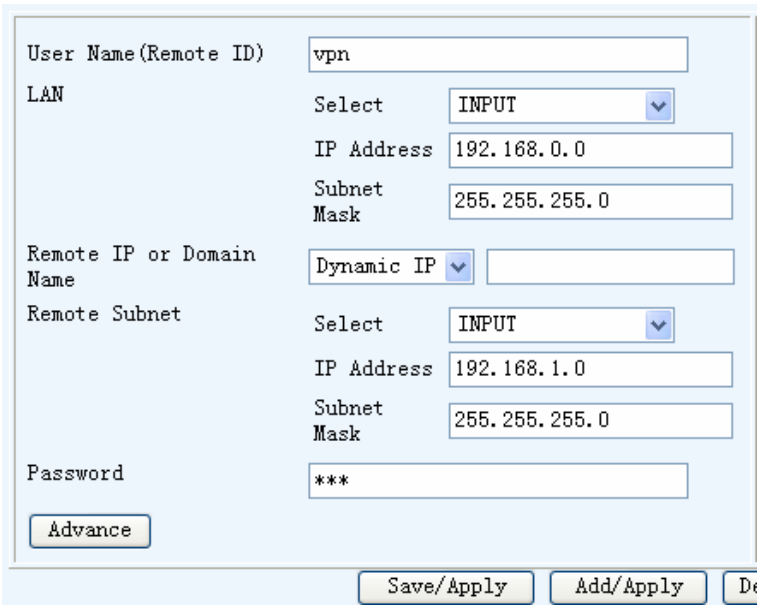
Normally, we recommend users take CISCO VPN Server as server VPN, and take our H685m router as client. However, we take H685m router as VPN Sever and VPN Client both for example.



A) Server side:

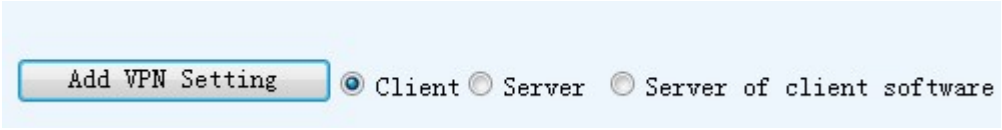
H685m router web – VPN – IPSEC, choose “Server” and click “Add VPN Setting”,

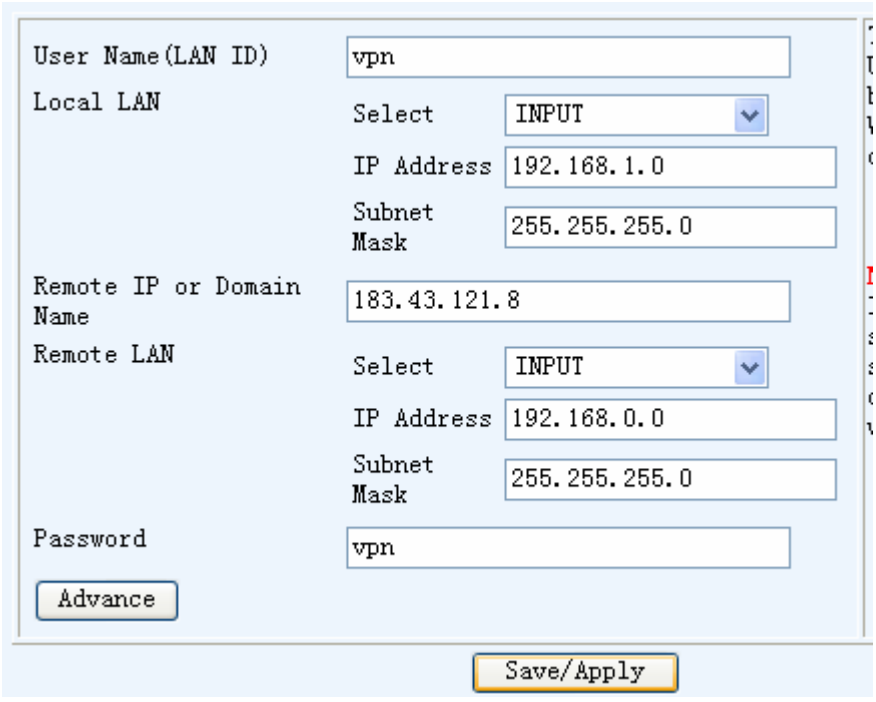
Fill in the parameters. See the following picture. Here the VPN username and password are both “vpn”



B) Client side

H685m router web – VPN – IPSEC, choose “Client” and click “Add VPN Setting”,

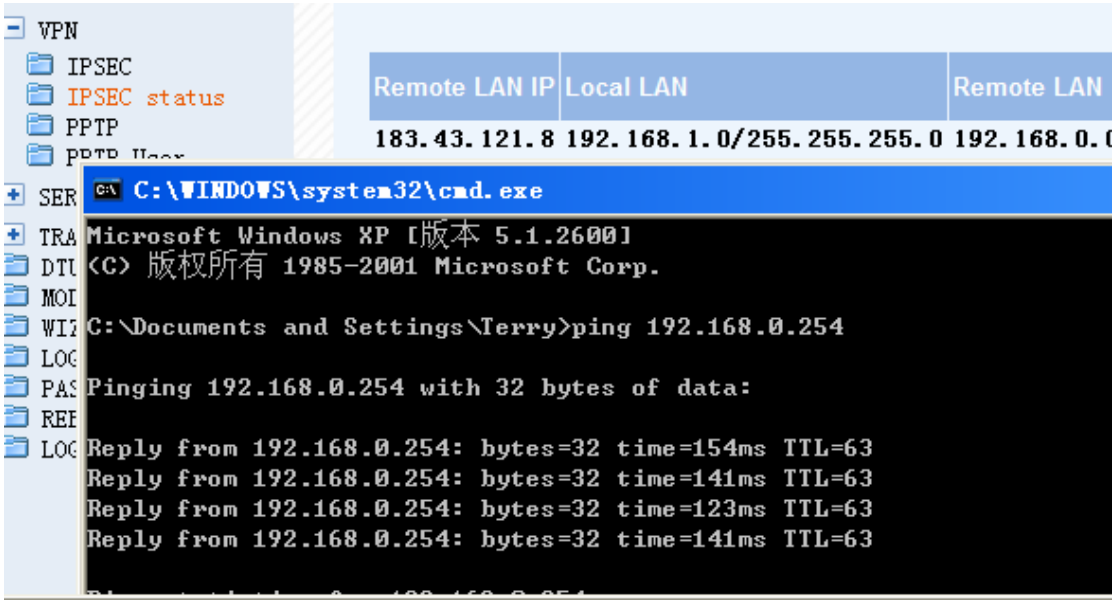




Test Verification:

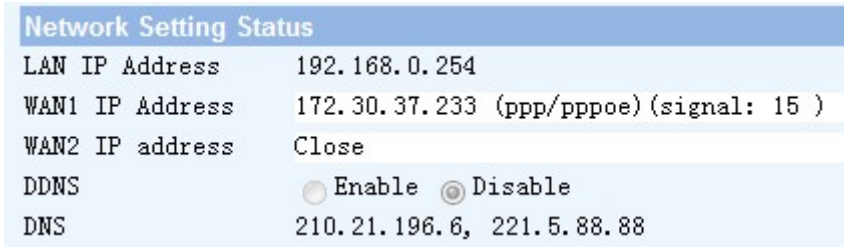
1) At PC connected with 192.168.1.0, ping 192.169.0.0 and it’s ping through.

2) At server or client router, you can check the IPSEC status. If the link is okay, there is info similar as followed picture

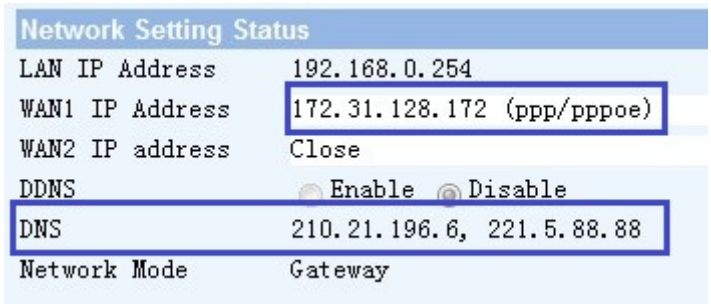


11.5 Signal Strength Check

H685m series will use different type of module modem depends on customer's requirement or our stock. Some module modem can show the signal strength in the "System Info" page of the router web page.

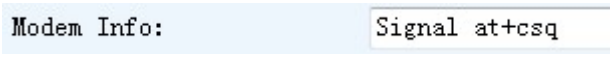

Network Setting Status
LAN IP Address 192.168.0.254
WAN1 IP Address 172.30.37.233 (ppp/pppoe)(signal: 15)
WAN2 IP address Close
DDNS Enable Disable
DNS 210.21.196.6, 221.5.88.88

However some module modem will not show.



Then how to find the signal?

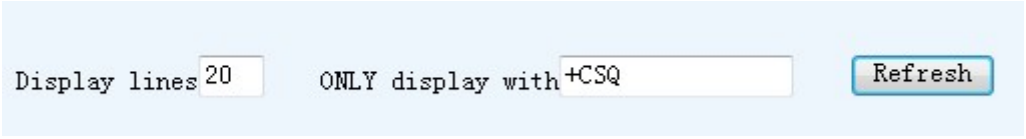
Way 1: at Router Web – PORT – WAN –WAN1, at "Modem Info", please input a command like this. Then save, and reboot (power-off and power on) the router.



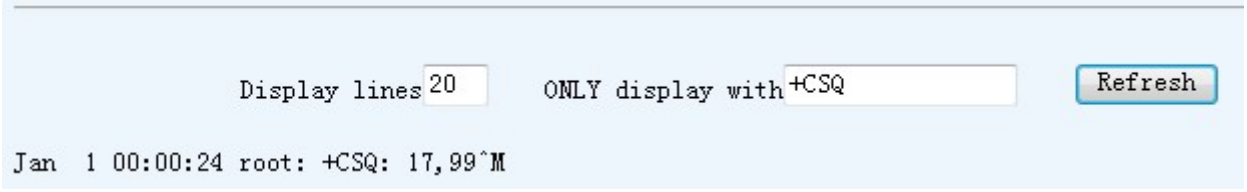
At Router Web – MODEM, it will show the signal strength.

```
MODULE
Signal                                  +CSQ: 17,99
```

Way 2: at Router Web – LOG
Input +CSQ at ONLY display with blank, then click Refresh Button.



It will show the following.



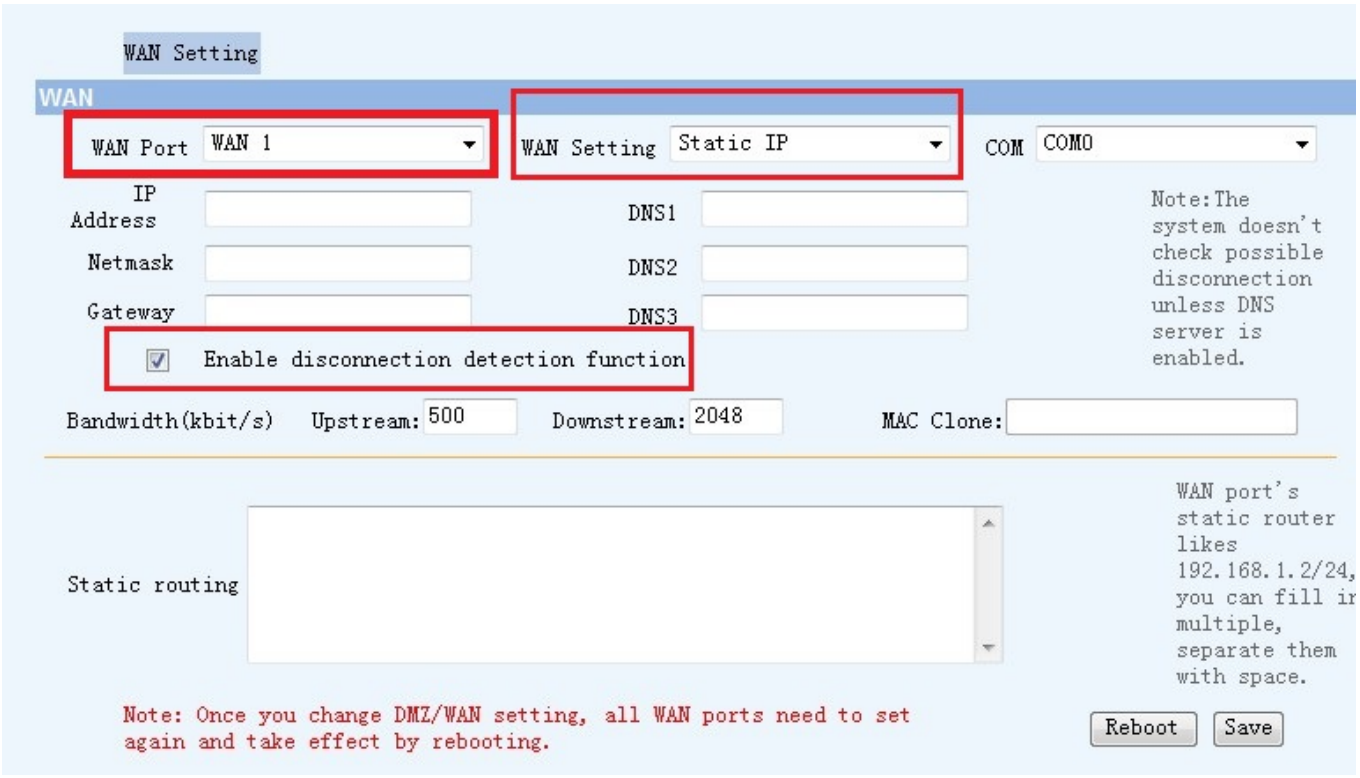
The number 17 is the signal strength.

Signal Number	Marks
0-5	Too poor
6-9	Poor to very weak
10-14	weak
15-19	Not too bad
20-25	Good
26-31	Very good

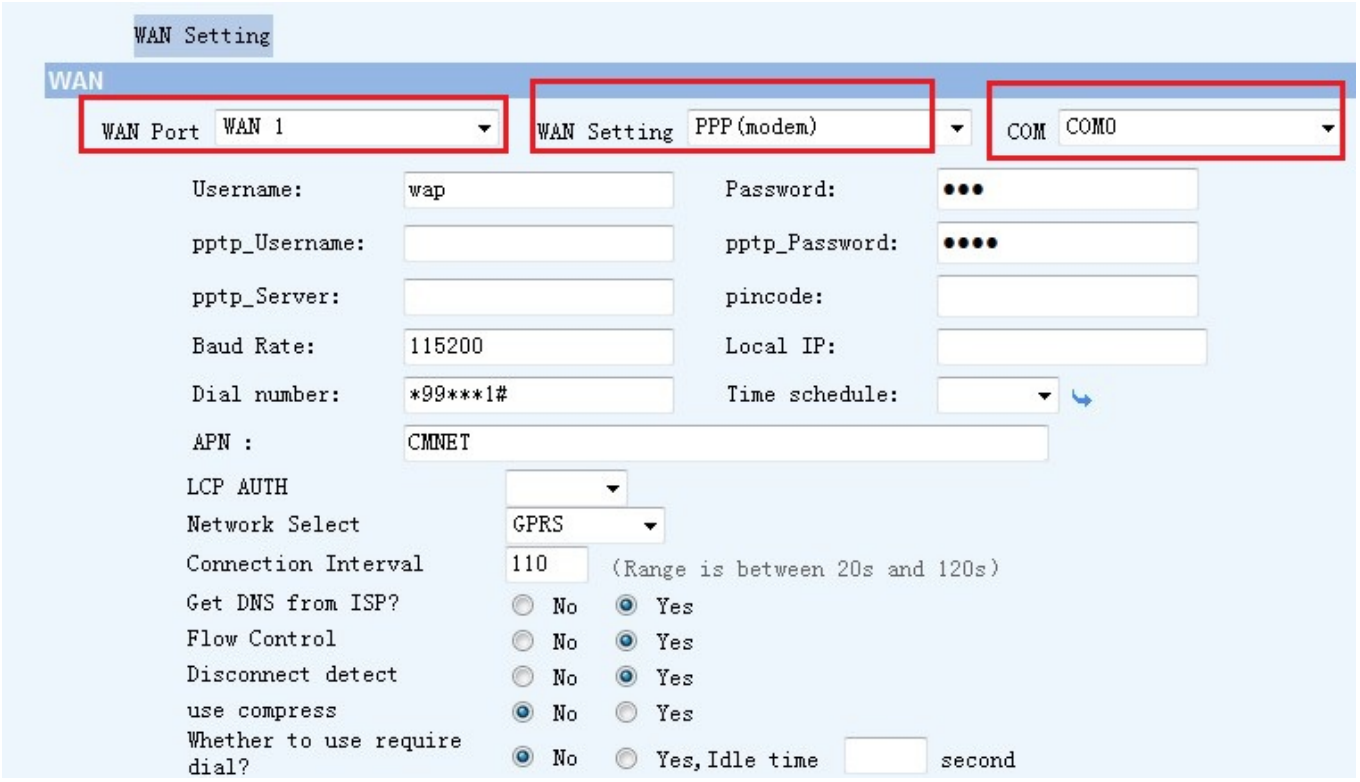
11.6 Keep alive feature

The H685m series router supports watchdog. The watchdog avoid freezing for H685m. Meanwhile, it built-in PPP checking and DNS checking features, it will automatically check dead-link or fake-link from the network. And besides, there is another IP checking feature to keep alive.

Router web – PORT – WAN –
Step 1) choose WAN1 from “WAN Port”, choose Static IP from “WAN setting”, and click at “Enable disconnection detection function”. Click “Save” button.



Step 2) Choose WAN1 from “WAN Port”, and PPP(modem) from “WAN Setting”, and choose correct COM port at “COM” and fill in the correct related parameters, which explains at chapter “4.1.2 WAN configuration”. Click “Save” button.

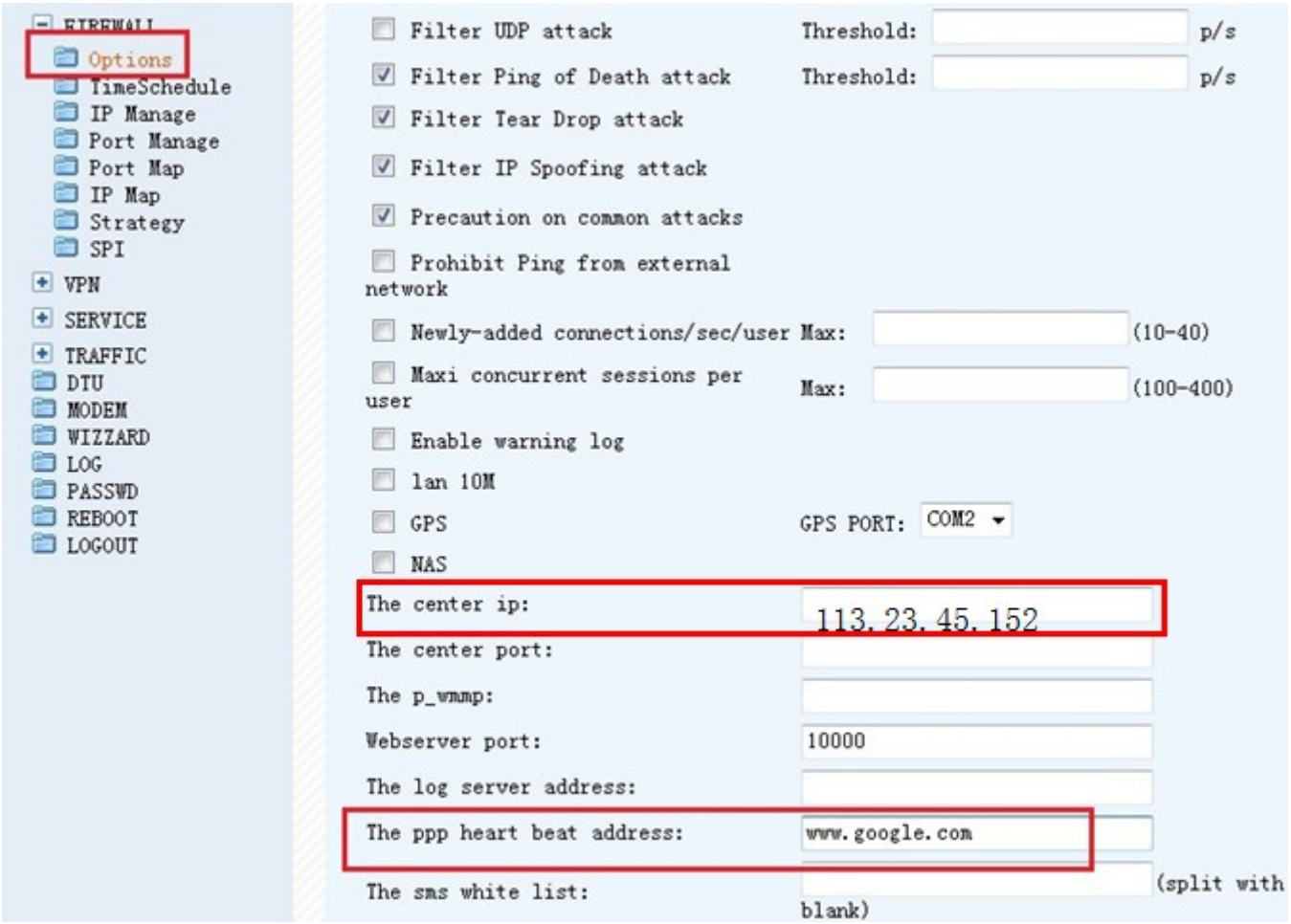


Step 3) Router web – FIREWALL—Options

Fill in a domain name or IP address at “The ppp heart beat address:”

Fill in a IP (can be ping through) at “The center ip”.

And click “Apply” button to save.



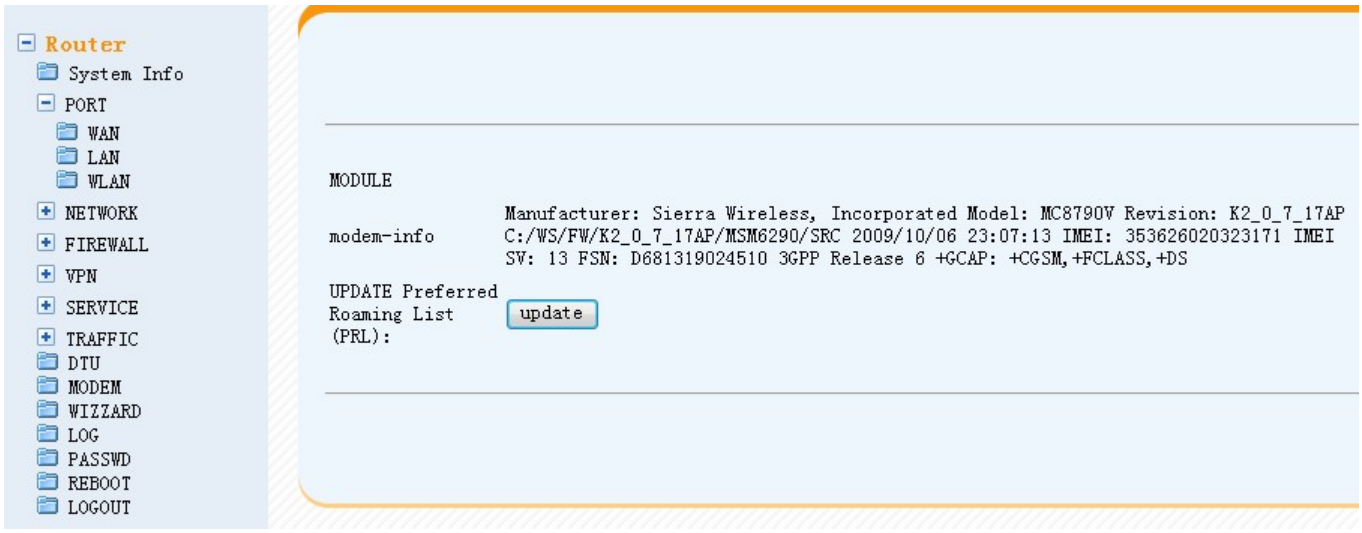
Step 4) Re-power on the router. The H700 router will ping the domain name or IP address at “The ppp heart beat address” and “The center ip”, if not through, it will ping the carrier’s DNS. If both not through, it will reboot to dialup to network.

11.7 Modem IMEI check

Step 1) Router web – Port – WAN, choose WAN1 from “WAN Port”, and PPP(modem) from “WAN Setting”, and choose correct COM port at “COM”, which explains at chapter “4.1.2 WAN configuration”.
At “Modem Info’, please fill in like the following:

Click “Save” button, and then reboot the router.

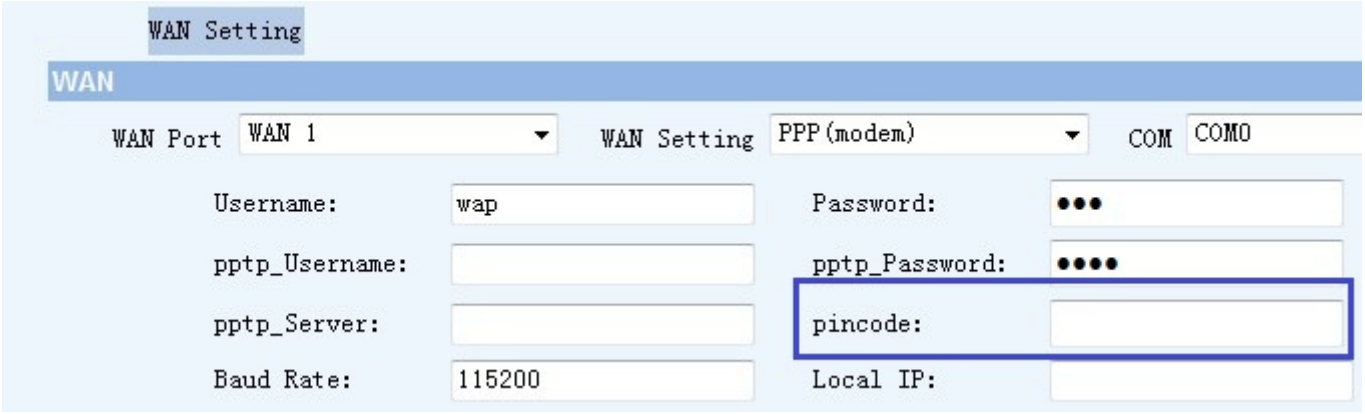
Step 2) Router web – MODEM
You can get the modem info similar to the following picture shows. And it shows the IMEI in the picture.



Notes: some module modem will not show the IMEI info with such operation.

11.8 Pin Code

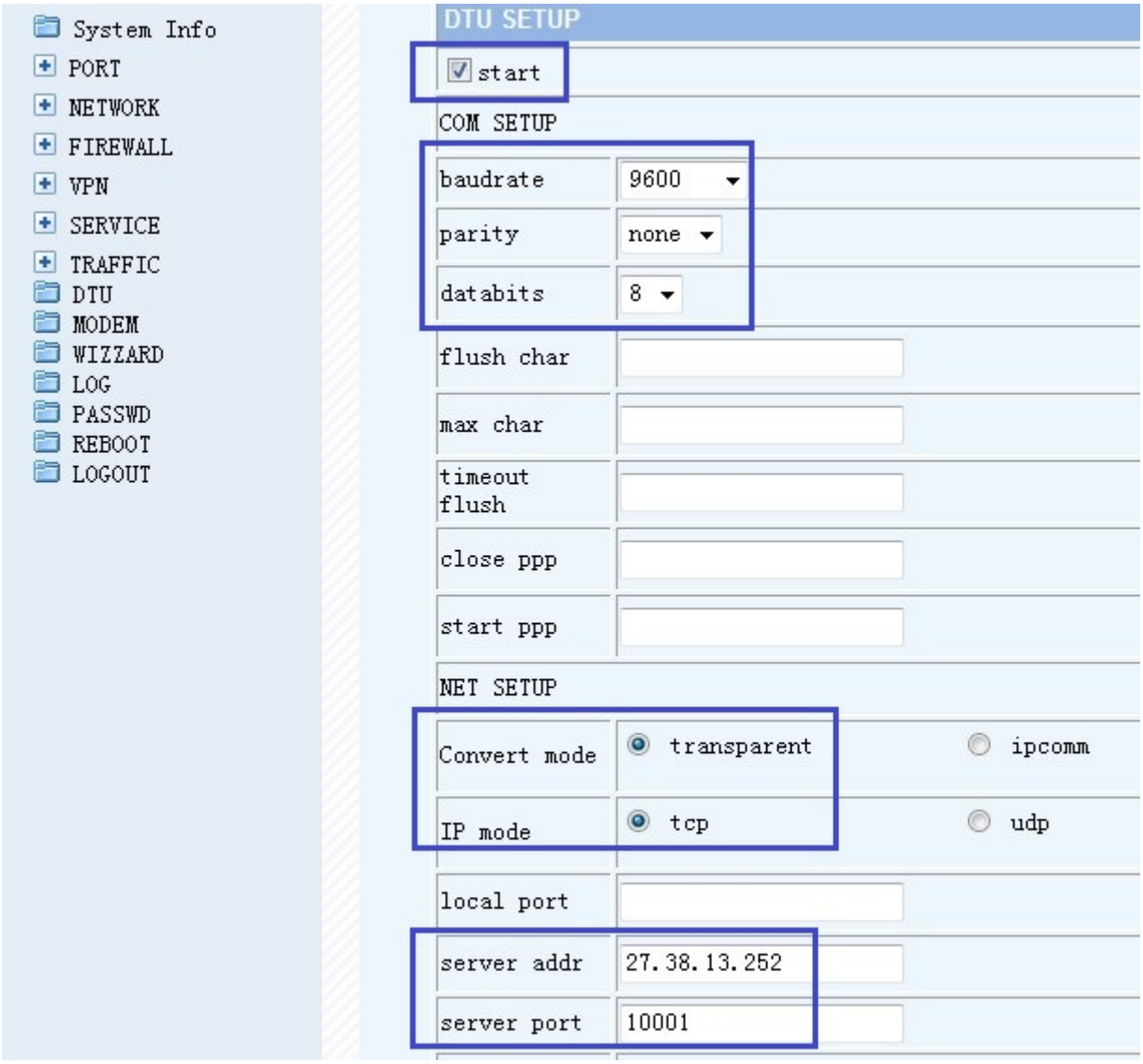
Some sim has pin code. If there is, please input the pin code when you config the parameters of the router. If there is none, please just keep blank. Please click “Save” button and reboot the router after the configuration.



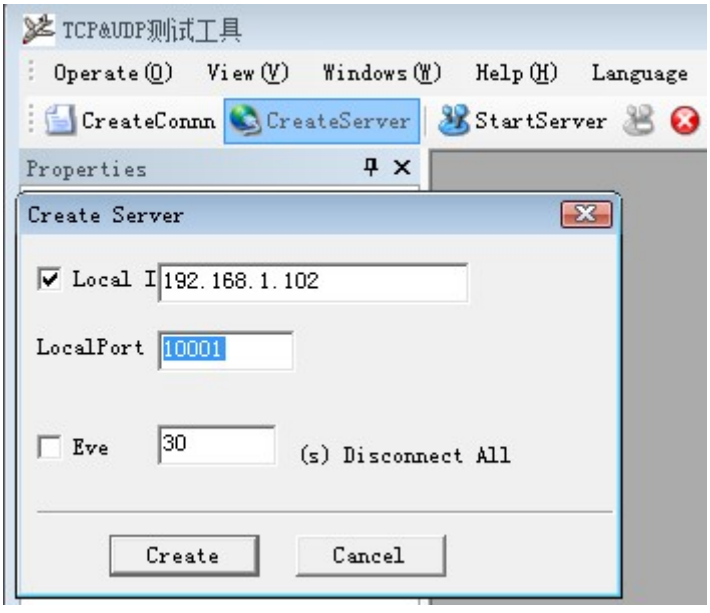
If sim card has pin code, and pincode is activated, the router will dialup and there is no indication in the sys log. If pin code is wrong set, the router will not dialup and get error while it send APN parameter to Base Station.

11.9 DTU feature (Serial to Cellular gateway feature) test sample

Here we just test the router’s DTU feature is working or not. We make H685m as DTU client, and get a PC to run a server tool software.
Step 1) check if your device is RS232 or RS485 port, should be same with the H685m series router.
Step 2) get the H685m’s DTU feature right setted as follows,

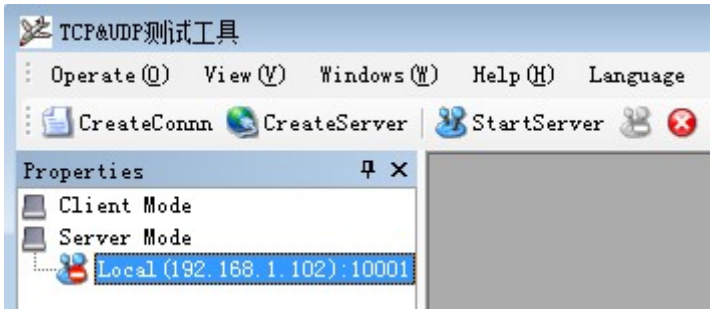


Step 3) at server PC, run the server tool software. You can choose your own server tool software.

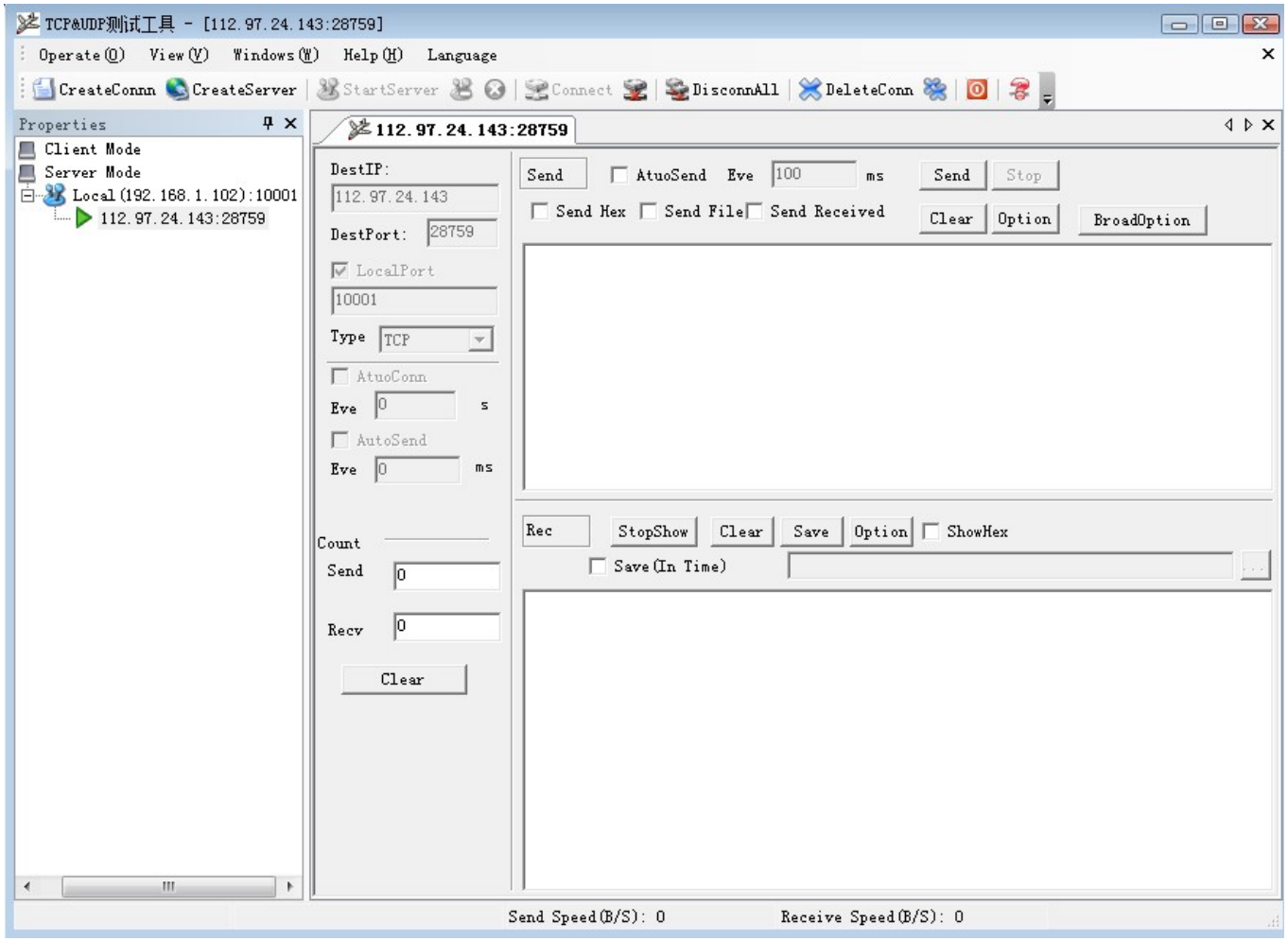


Click “CreatServer” button, fill in the parameters similar as above. This is as server IP and Port. If your server

PC is behind a router/firewall, please make NAT/NAPT feature at the router/firewall.
Click “Create” button to finish.

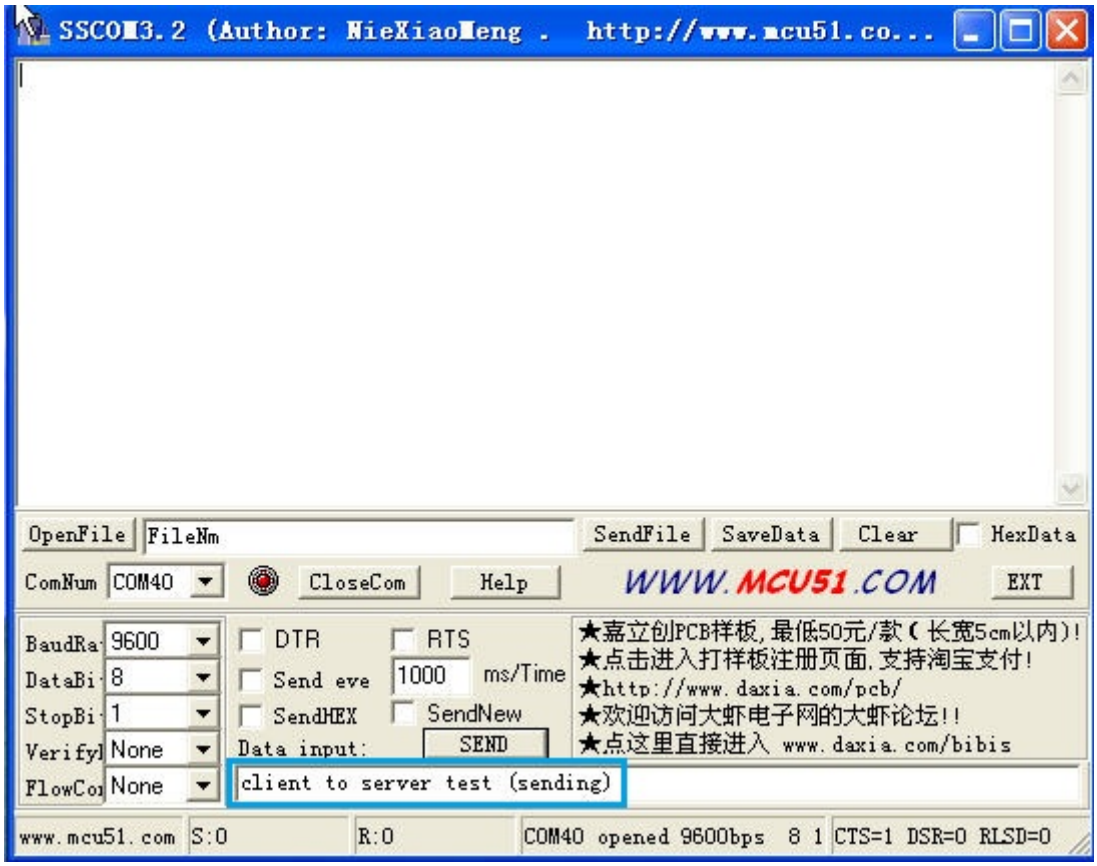


Choose the Server we created, and click “StartzServer” button. Then the H685m-client will automatically try to connect the Server. Once the TCP connection is created, it will show the following.

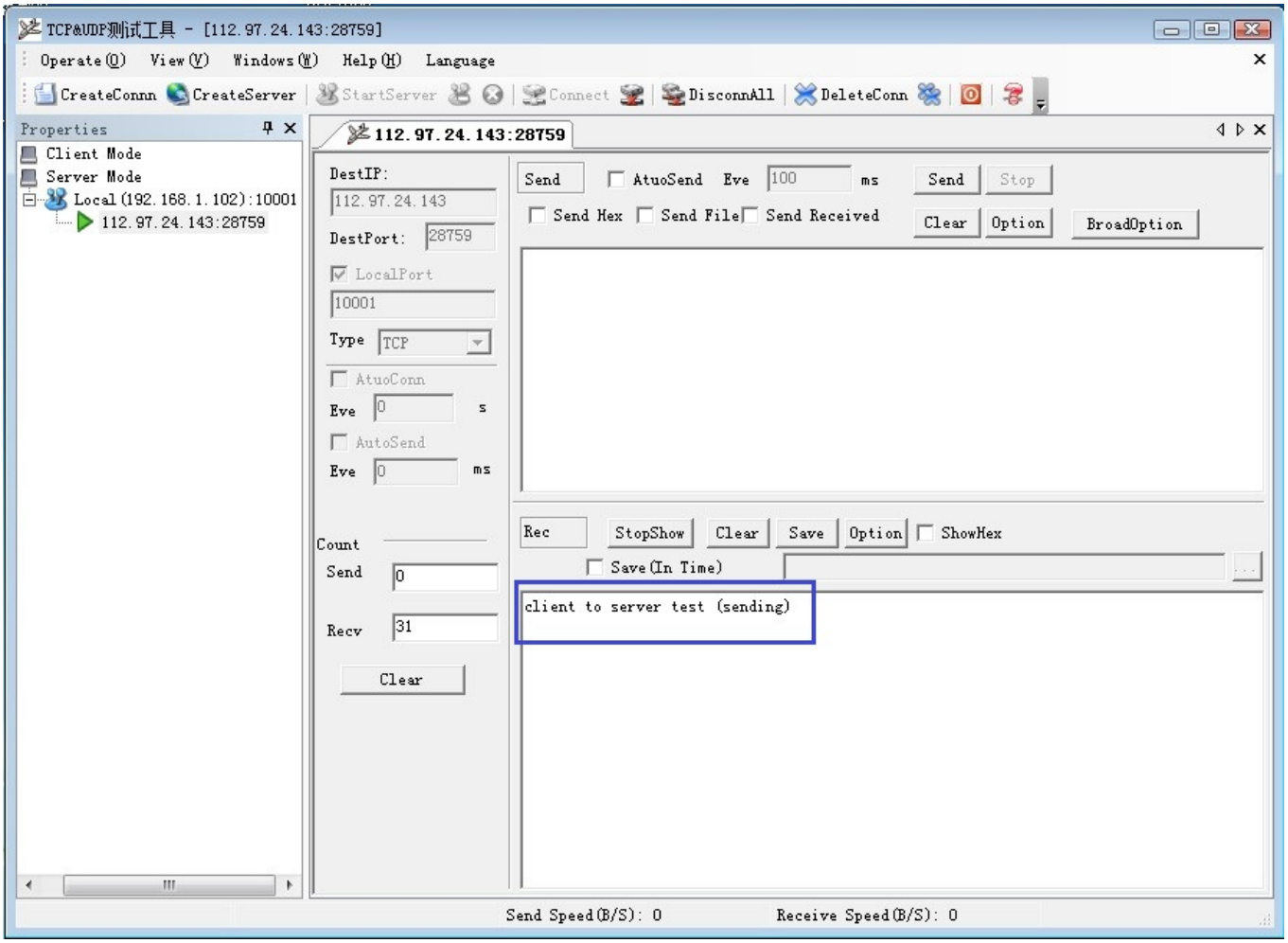


Step 4) at H685m-client, we run the serial tool. Here we use SSCOM3.2 software tool. You can use hypter terminal at Windows or other software tool. Config the right parameters with the H685m-client DTU parameters.

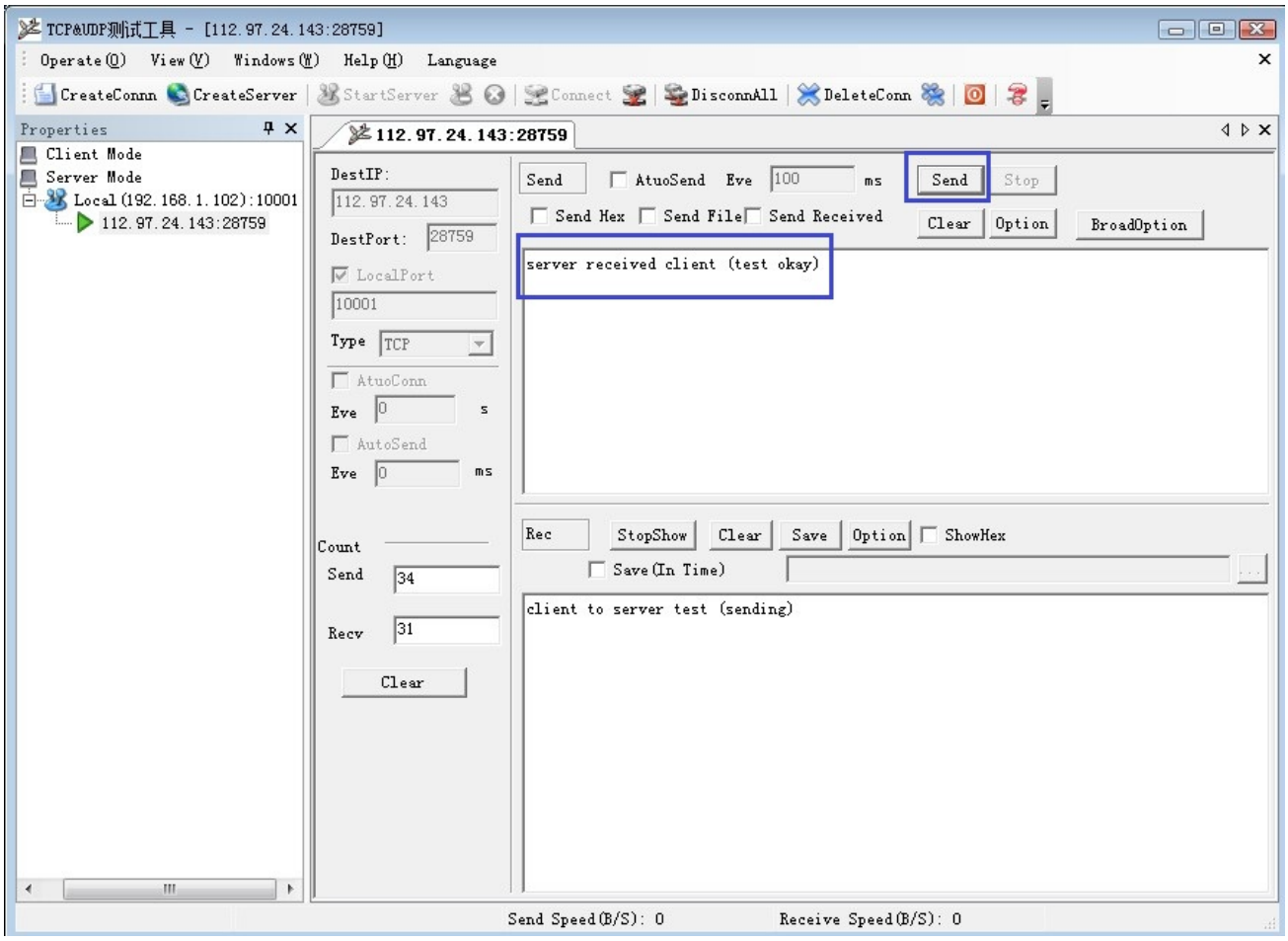
Try to send some messenger, for example “client to server test (sending)”, and click “SEND” button.



The Server side will receive the related messenge, which indicates the “client to server” test is working.



Step 5) From “Server Side”, try to send some messenge to client side, for example,

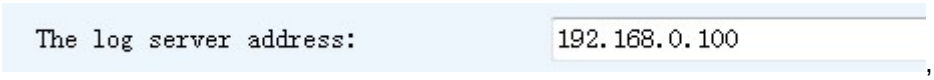


The client side will receive the related messenge, which indicates the “server to client” test is working.

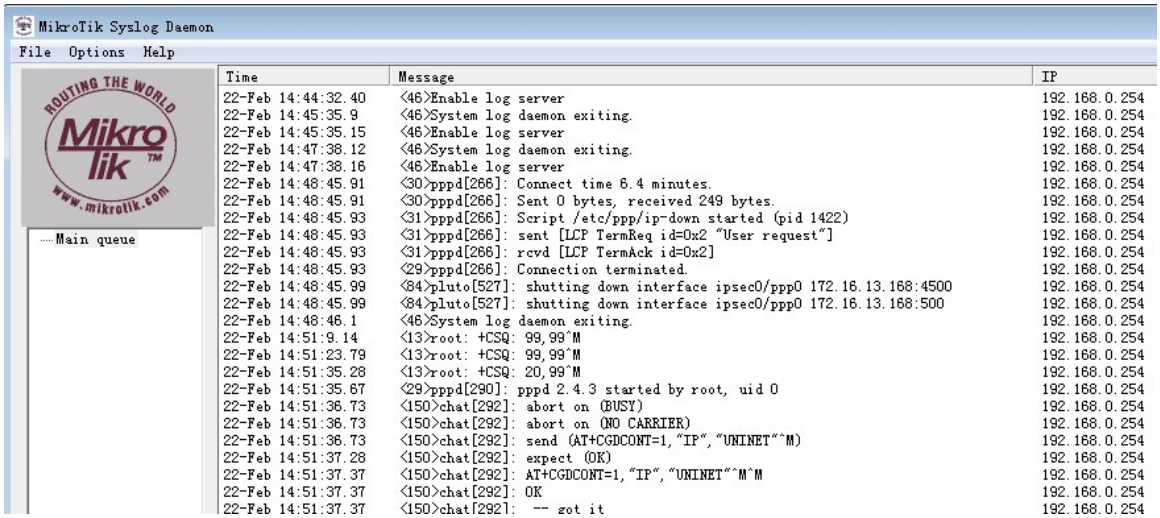
SSCOM3.2 (Author: NieXiaoMeng http://www.mcu51.co...
server received client (test okay)
OpenFile FileNm SendFile SaveData Clear HexData
ComNum COM40 CloseCom Help WWW.MCU51.COM EXT
BaudRa 9600 DTR RTS
DataBi 8 Send eve 1000 ms/Time
StopBi 1 SendHEX SendNew
Verify None Data input: SEND
FlowCo None
★嘉立创PCB样板,最低50元/款(长宽5cm以内)!
★点击进入打样板注册页面,支持淘宝支付!
★http://www.daxia.com/pcb/
★欢迎访问大虾电子网的大虾论坛!!
★点这里直接进入 www.daxia.com/bibis
client to server test (sending)
www.mcu51.com S:0 R:34 COM40 opened 9600bps 8 1 CTS=1 DSR=0 RLSD=0

11.10 Remote/SysLog tool records the sys log

Step 1) Connect one PC to the H685m router via RJ45. And default it gets a IP of 192.168.0.100
Step 2) Run a Log Tool at PC 192.168.0.100, here we use “MT_Syslog.exe”
Step 3) H685m router web – FIREWALL—Options, input “192.168.0.100” at “The log server address”

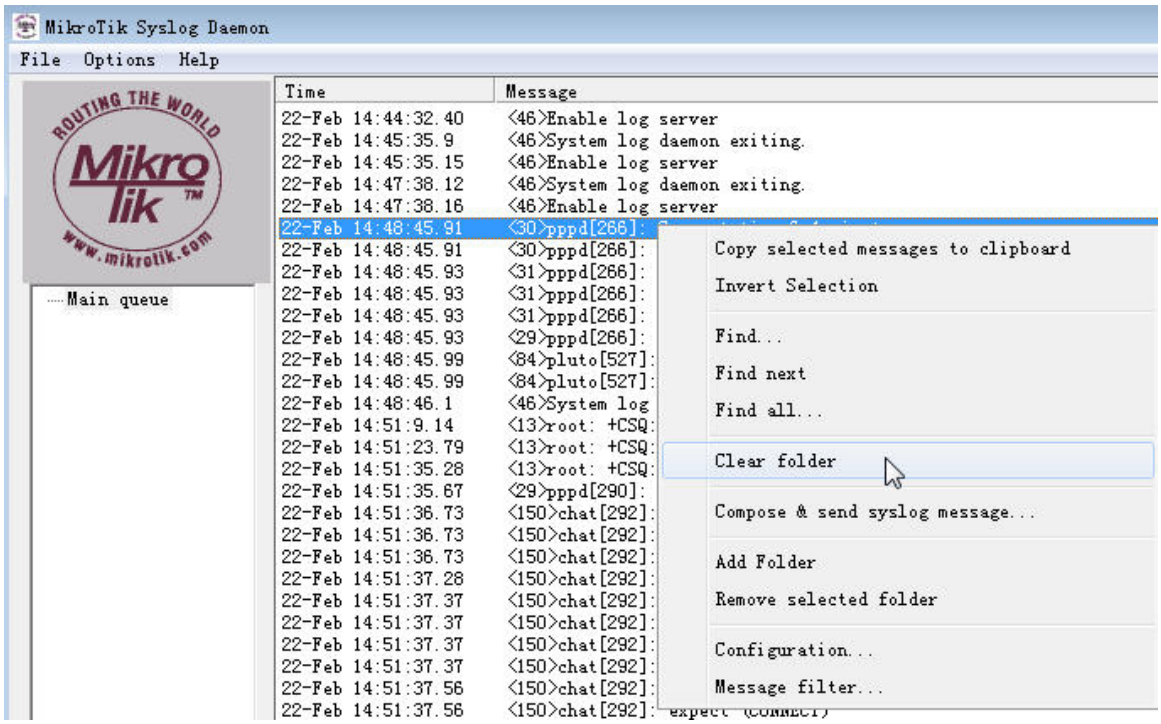


Then click “Apply” button.
Step 4) Then the “MT_Syslog.exe” will show the log history inside.


MikroTik Syslog Daemon
File Options Help
Main queue
Time Message IP
22-Feb 14:44:32.40 <46>Enable log server 192.168.0.254
22-Feb 14:45:35.9 <46>System log daemon exiting. 192.168.0.254
22-Feb 14:45:35.15 <46>Enable log server 192.168.0.254
22-Feb 14:47:38.12 <46>System log daemon exiting. 192.168.0.254
22-Feb 14:47:38.16 <46>Enable log server 192.168.0.254
22-Feb 14:48:45.91 <30>pppd[266]: Connect time 6.4 minutes. 192.168.0.254
22-Feb 14:48:45.91 <30>pppd[266]: Sent 0 bytes, received 249 bytes. 192.168.0.254
22-Feb 14:48:45.93 <31>pppd[266]: Script /etc/ppp/ip-down started (pid 1422) 192.168.0.254
22-Feb 14:48:45.93 <31>pppd[266]: sent [LCP TermReq id=0x2 "User request"] 192.168.0.254
22-Feb 14:48:45.93 <31>pppd[266]: rcvd [LCP TermAck id=0x2] 192.168.0.254
22-Feb 14:48:45.93 <29>pppd[266]: Connection terminated. 192.168.0.254
22-Feb 14:48:45.99 <84>pluto[527]: shutting down interface ipsec0/ppp0 172.16.13.168:4500 192.168.0.254
22-Feb 14:48:45.99 <84>pluto[527]: shutting down interface ipsec0/ppp0 172.16.13.168:500 192.168.0.254
22-Feb 14:48:46.1 <46>System log daemon exiting. 192.168.0.254
22-Feb 14:51:9.14 <13>root: +CSQ: 99,99^M 192.168.0.254
22-Feb 14:51:23.79 <13>root: +CSQ: 99,99^M 192.168.0.254
22-Feb 14:51:35.28 <13>root: +CSQ: 20,99^M 192.168.0.254
22-Feb 14:51:35.67 <29>pppd[290]: pppd 2.4.3 started by root, uid 0 192.168.0.254
22-Feb 14:51:36.73 <150>chat[292]: abort on (BUSY) 192.168.0.254
22-Feb 14:51:36.73 <150>chat[292]: abort on (NO CARRIER) 192.168.0.254
22-Feb 14:51:36.73 <150>chat[292]: send (AT+CGDCONT=1,"IP","UNINET"^M) 192.168.0.254
22-Feb 14:51:37.28 <150>chat[292]: expect (OK) 192.168.0.254
22-Feb 14:51:37.37 <150>chat[292]: AT+CGDCONT=1,"IP","UNINET"^M^M 192.168.0.254
22-Feb 14:51:37.37 <150>chat[292]: OK 192.168.0.254
22-Feb 14:51:37.37 <150>chat[292]: -- got it 192.168.0.254

At the directory of “MT_Syslog.exe”, you can find a file named “tmplog.log”. This file stores all the sys log.

Notes: before using this tool, please right click and choose “’Clear folder”, which will avoid the history mixed.

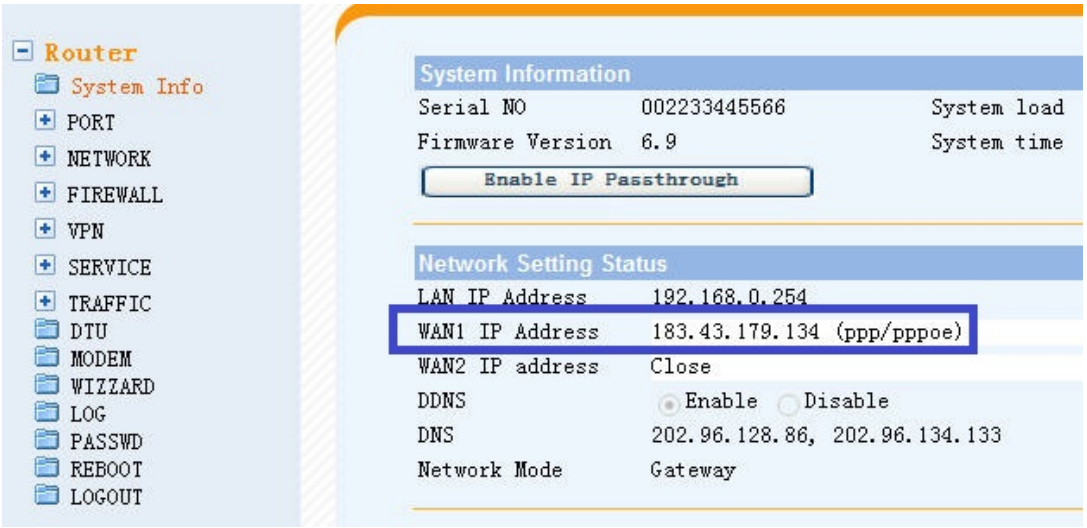


11.11 Port Forwarding (NAT, NAPT) test

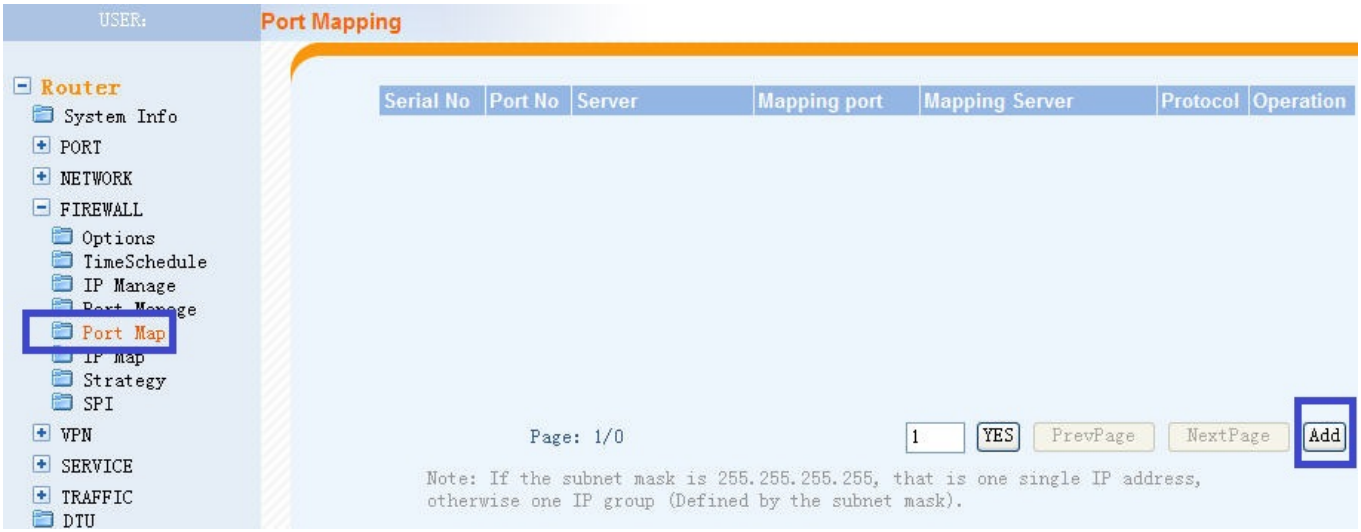
Note: the test is simulation test to approve and show the feature. Please make it work in your real application.

Warmly reminding:
Question: I configure the port forwarding feature correctly, but still no work.
Answer: first, please check the port if block by your ISP, because some ISP block some ports for security reason.
For example, the H685m gets WAN IP 27.38.14.223. And the H685's default web port is 10000. So from the other network, try to visit http:// 27.38.14.223:10000 if can be okay. If no okay, it means the ISP blocks the 10000 port. Then check with your ISP which ports are open for use. Then re-try the port forwarding feature.

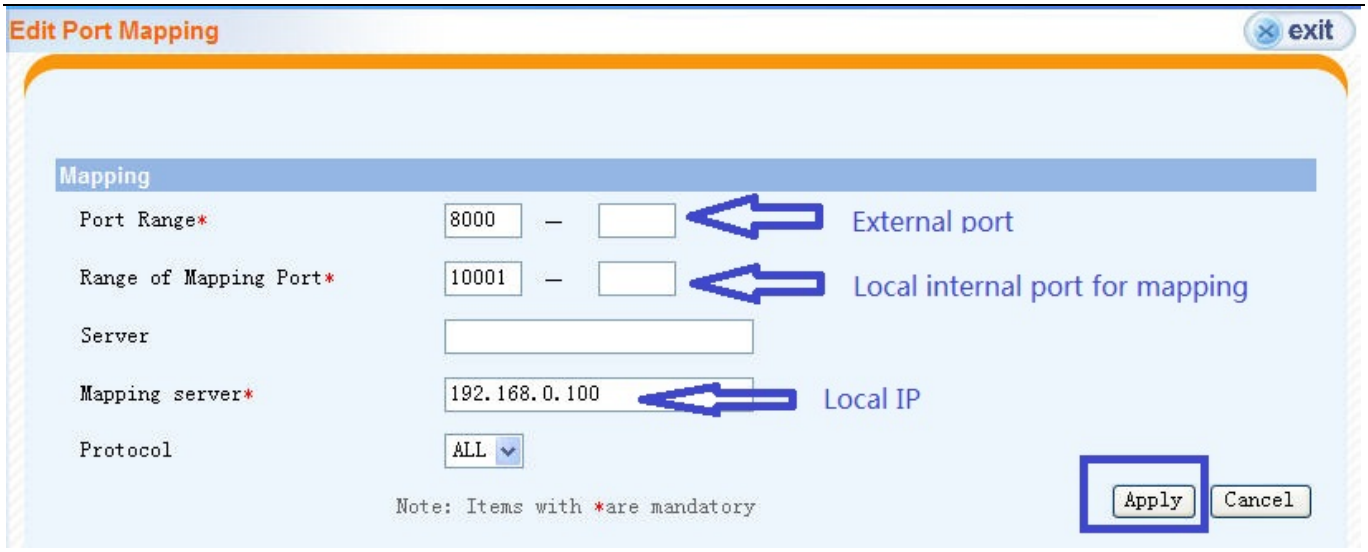
Step 1) make H685m router to be online.

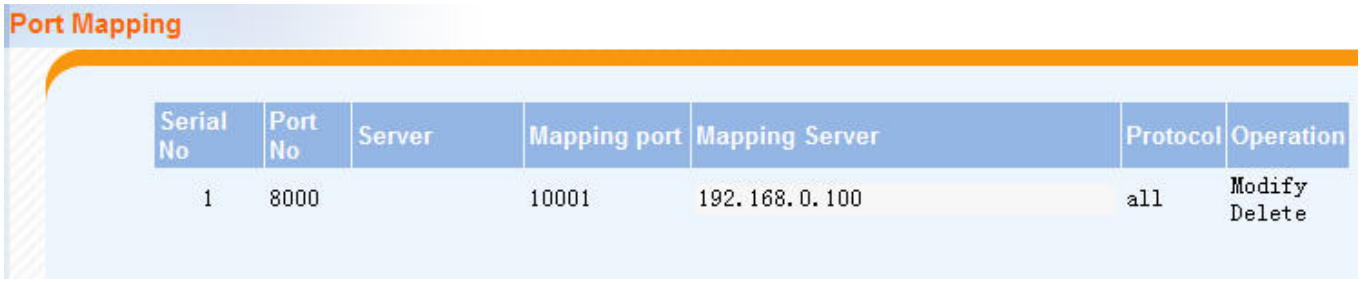


Step 2) configure the *port forwarding* feature for H685m router



Click *Apply Button* to start the setting. It will show the following picture.



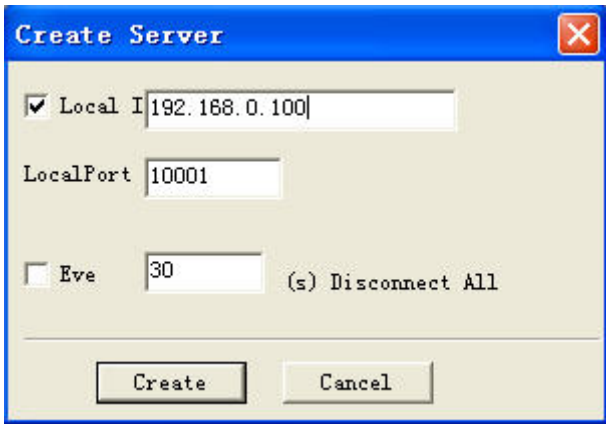


Step 3) here we take a PC to be as a TCP server/Remote Device.

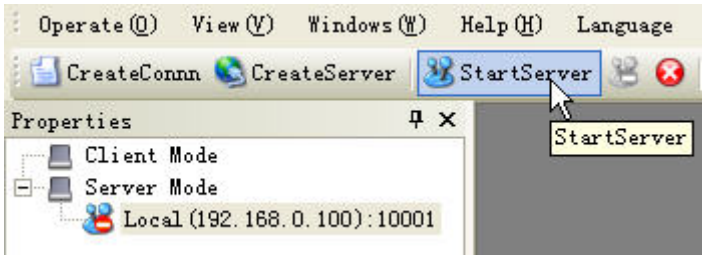
Connect the PC to H685 router LAN port via RJ45 cable. And it gets an IP 192.168.0.100.

At the PC, run *TCP&UDP_debug* software (If you have no such software, require to get from us).

Firstly, click *Server Mode*, and *CreateServer,*

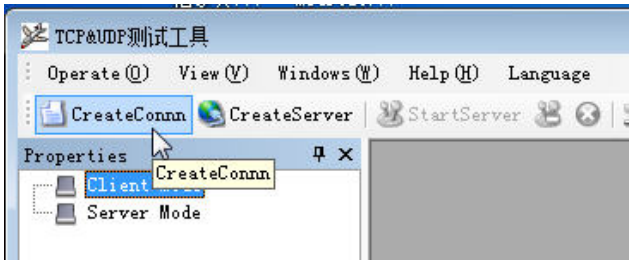


Secondly, fill in the parameters like this. The *Local IP* is the PC's IP from H685m router. The *LocalPort* is the port of the PC which will be mapped. Click *Create Button* to finish.

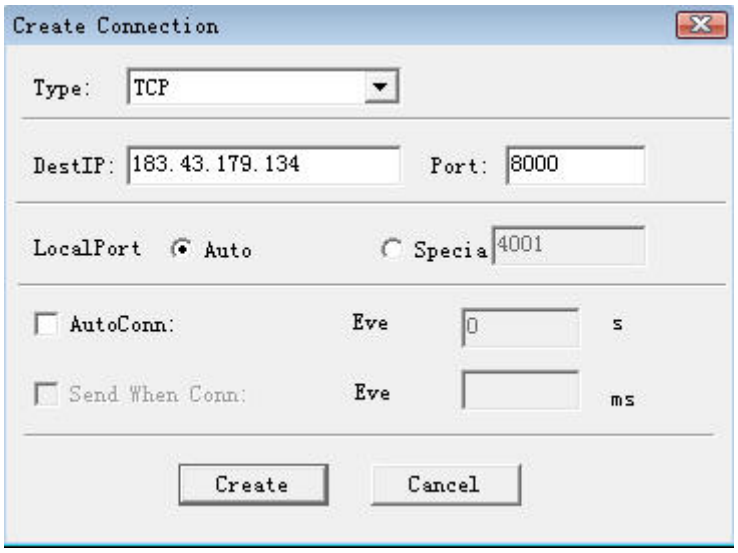


Choose the created server, and click *StartServer*. It will show the following windows.

Step 4) here we take another PC to be as a TCP client.
This PC is with internet in another network. Run *TCPUDP_debug* software tool, choose *Client Mode*,

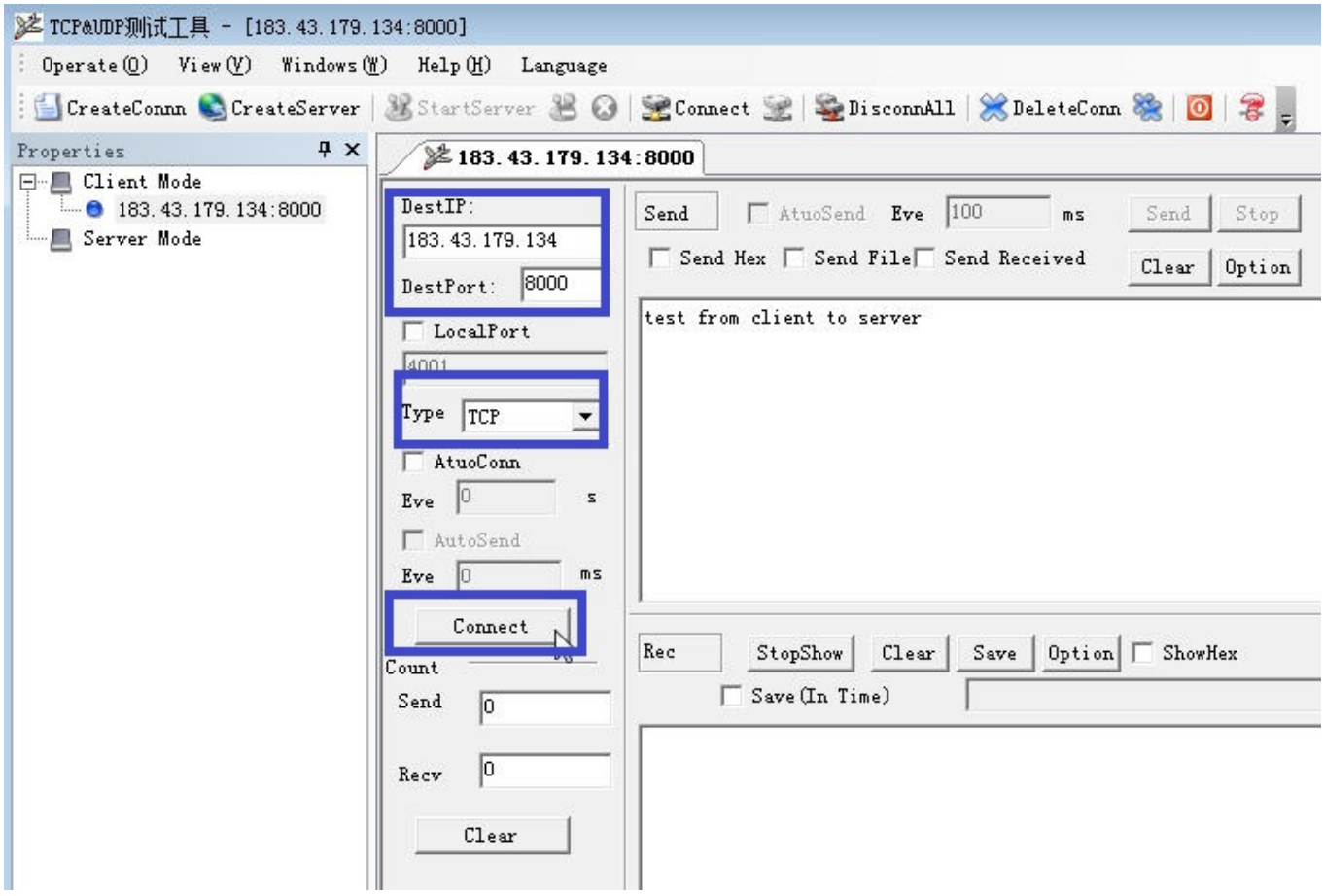


and click *CreateConn*,

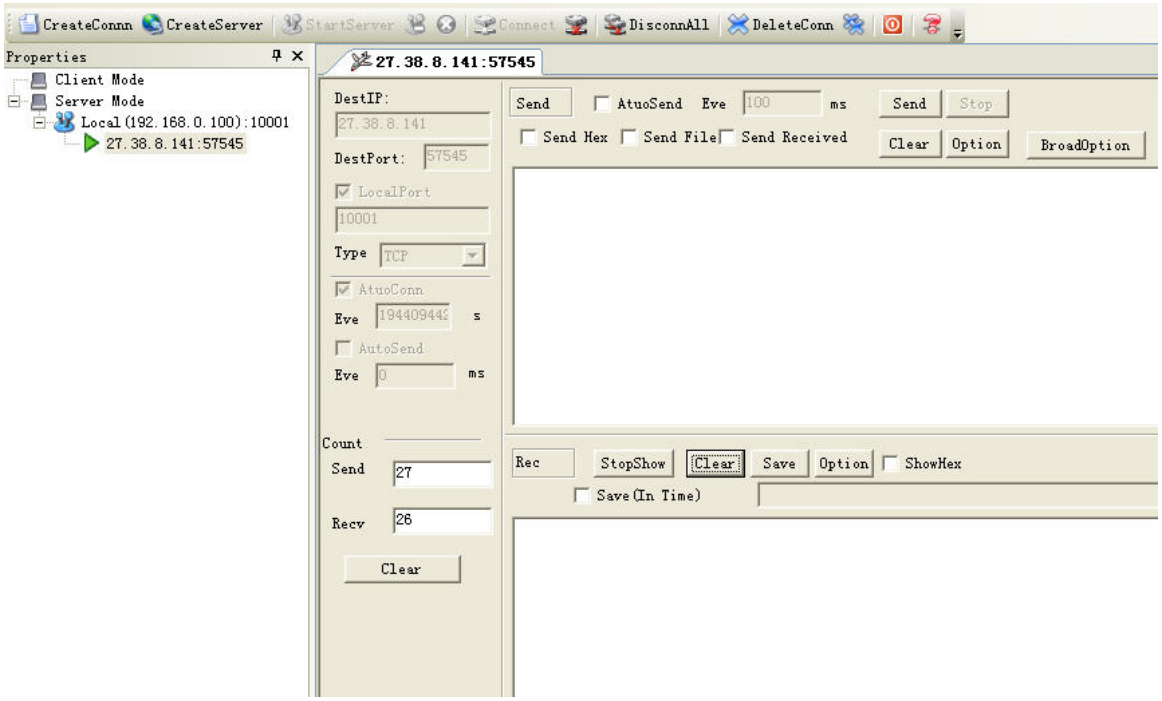


Type: choose TCP, DestIP: fill in the H685m router's WAN IP (here is 183.43.179.134), Port: 8000 (This port is external port for mapped port 10001). Click *Create* button to finish.

Then check the DestIP, DestPort and Type, and click *Connect* button to link.

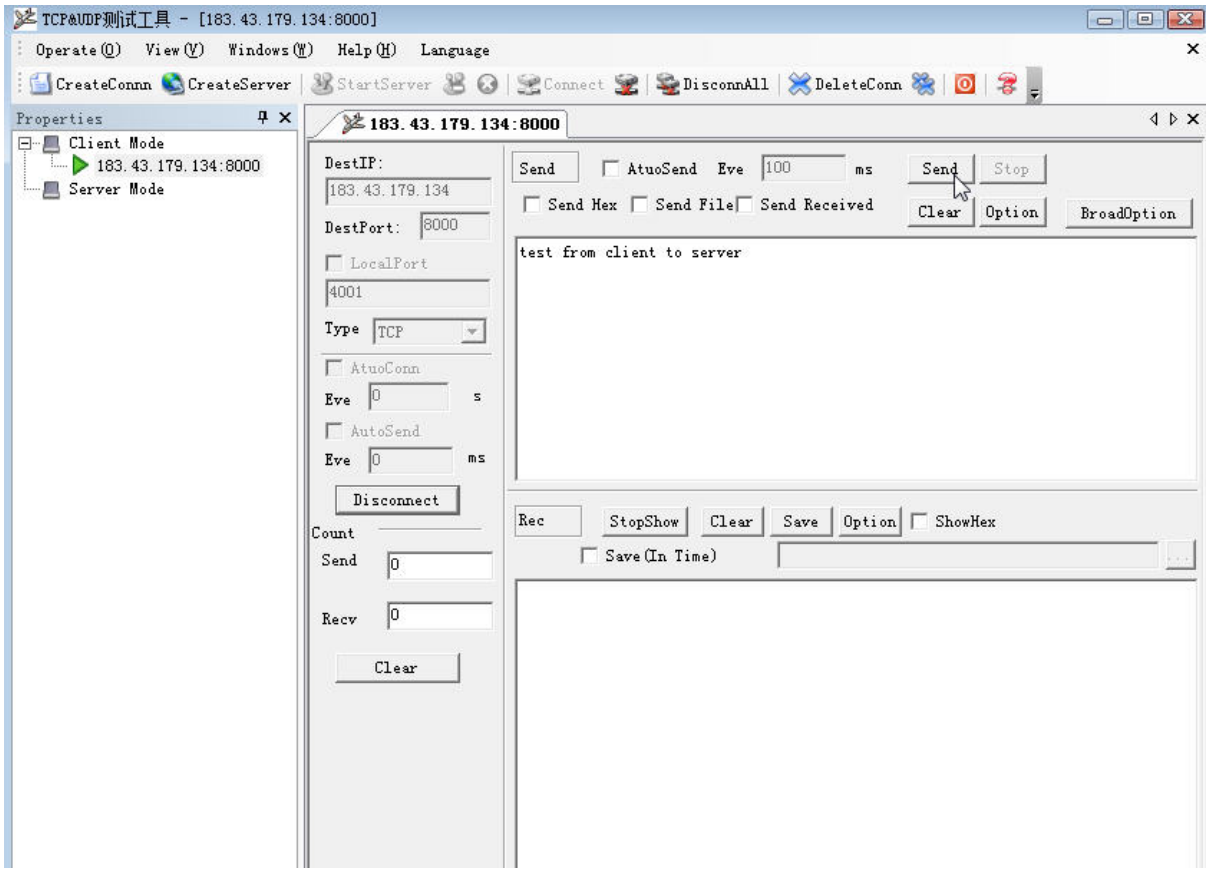


Once the link is done, at the Server PC's side, it shows the following picture, which indicates the link is created.

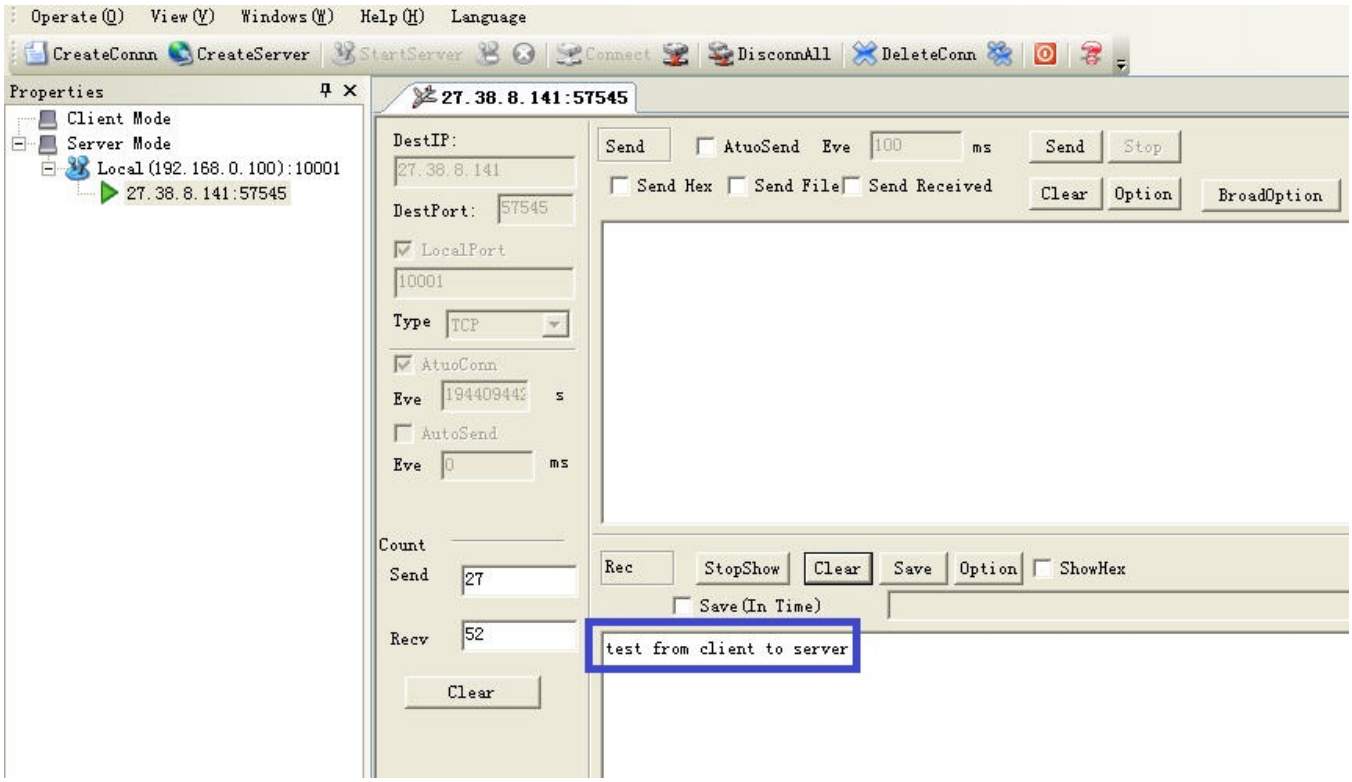


Step 5) Test the link for sending and receiving

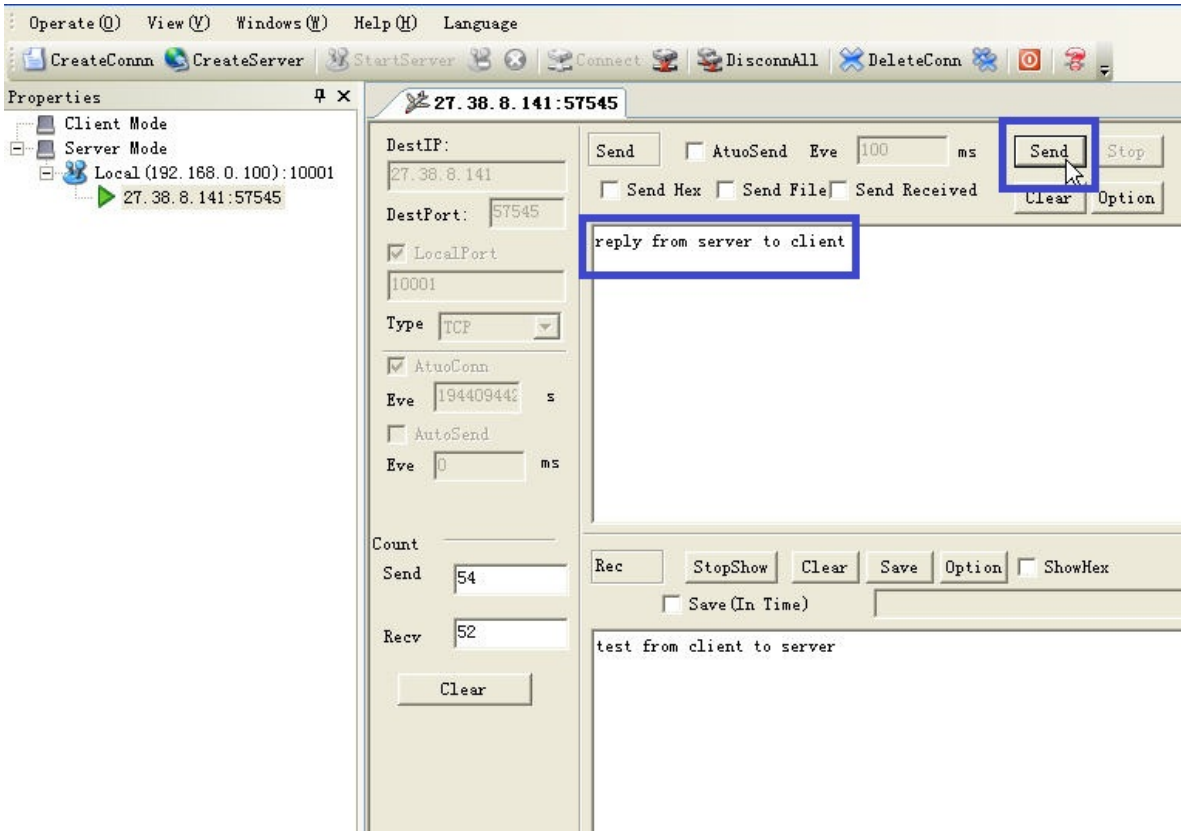
At client PC, type “test from client to server”, and click *Send* button.



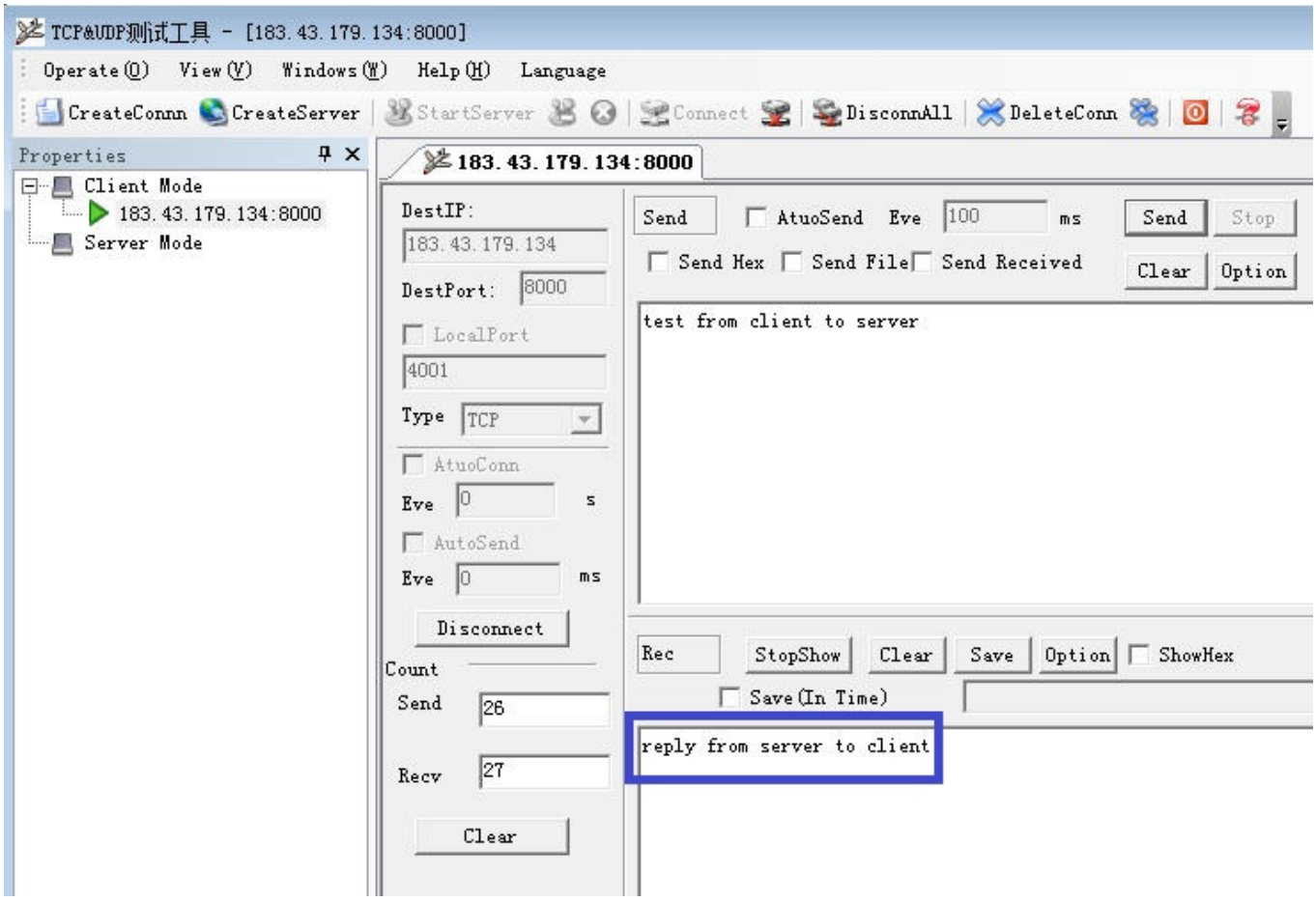
At the server PC, it will receive the info the client PC.



At Server PC, type “reply from server to client”, and click *Send* button.



At the client PC side, it will receive the related info from server PC side.



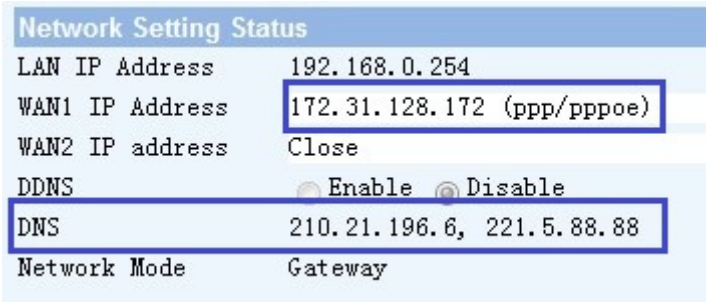
With this result, it indicates the port forwarding is working.

Chapter 12

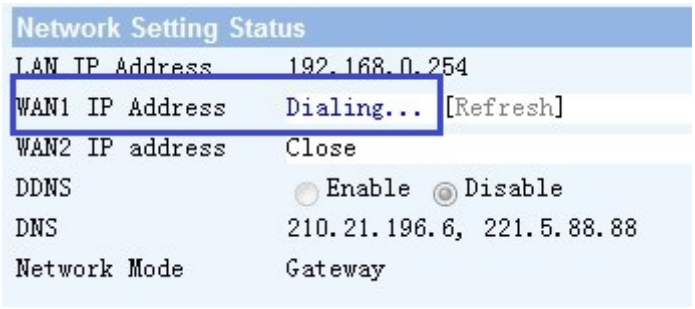
12 FAQ

12.1 WAN IP Address shows “Dialing” always.

At Router web—System Info, it shows WAN IP Address and DNS once the router is online. For example,



However, if you find the following status that it shows “Dialing” always,



Problem maybe:

Item.	May caused by	Solution
1	WAN port is not right configed	Refer to Chapter 4.1.2 WAN configuration to solve it. For some module modem type, please do not forget the command “CMD AT+CFUN=1” at “Modem Info” of WAN configuration page.
2	SIM card has problem for data business or no balance	Check the sim card with the ISP or network provider or sim card provider. Try another working sim card.
3	No network signal	Move the router to another site to check.
4	VPN configuration is wrong	You may config the VPN in wrong way. Please check the WAN port configuration.
5	Module modem is defeated	Send back the unit to factory for repair

12.2 Can not power on

Solution:

1. Check if the power adapter connector is loose from the router.
2. Try to replace a power adapter. H685m series router uses 9V1.5A or 9V2A or 12V1A or 12V1.5A or 12V2A power adapter with 2.5mm connector
3. Router hardware defeated. Send back to factory for check or repair.

12.3 LOG shows “No network protocols running”

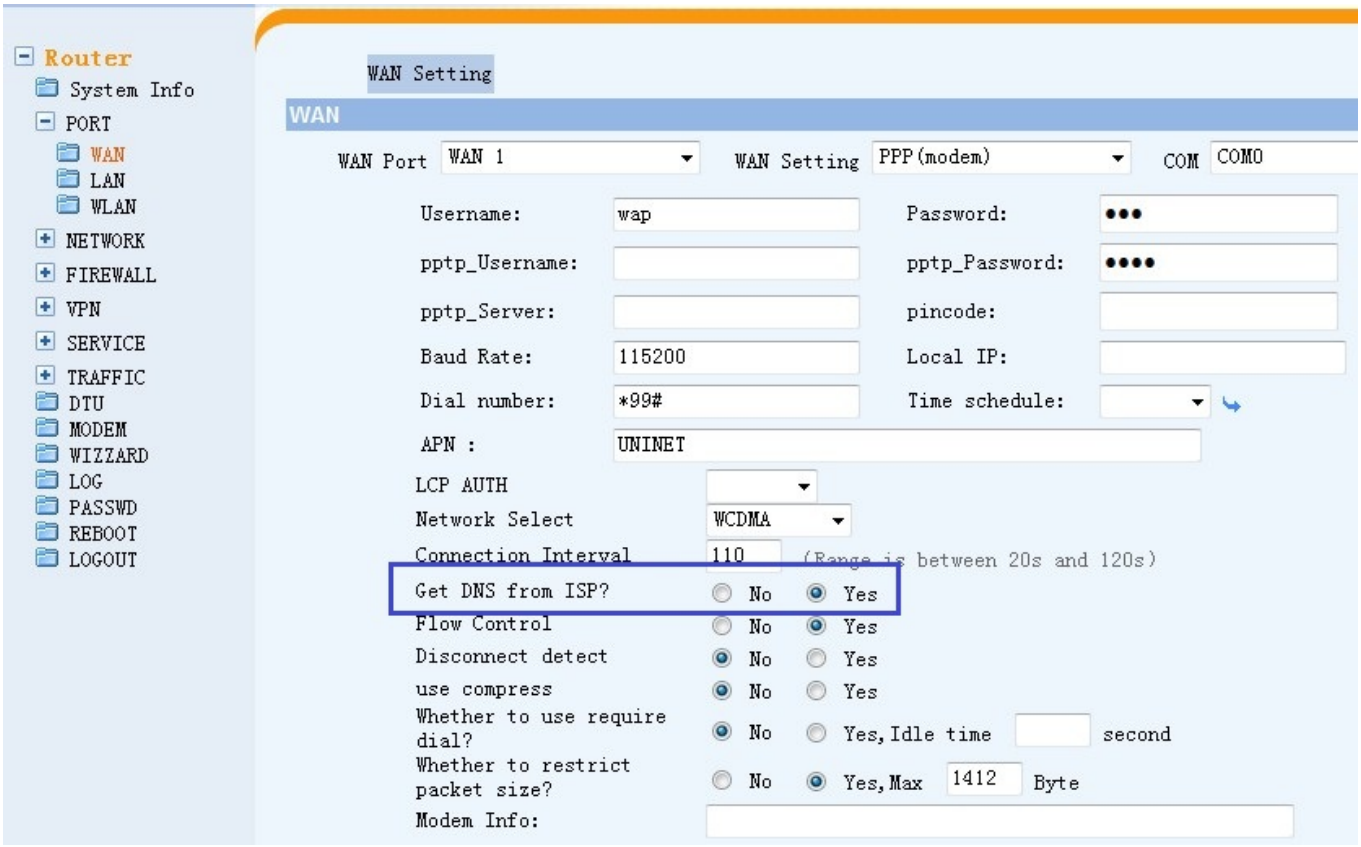
Problem maybe:

Item.	May caused by	Solution
1	A. sim card no data business, or problem; B. sim card balance no available;	A. Check sim card data business and balance. B. Get balance available
2.	WAN APN parameter is wrong	Check APN parameter of WAN port, then make it correct and try
3	Network unstable problem	Try later, or move to other network to try.
4	Module modem inside router setting wrong by uncertain operation	Tell the module modem type (marked at the back cover of router) to technical support for help.
5	Module modem inside router only support 2G or 3G only	Need contact sales for replacement or repair

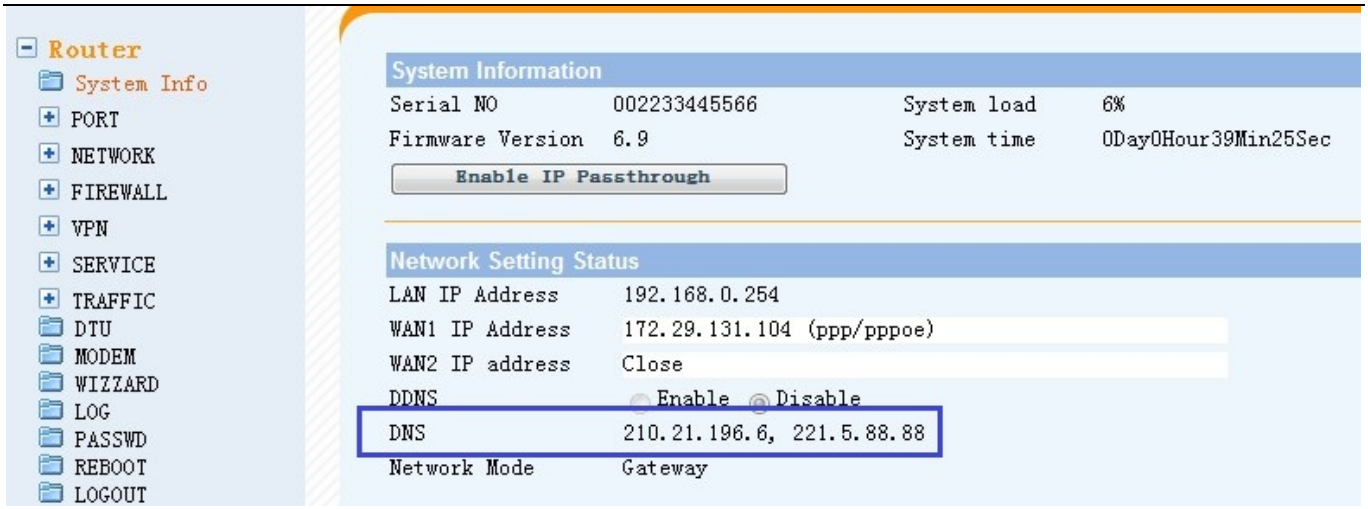
12.4 DNS is wrong after dialup

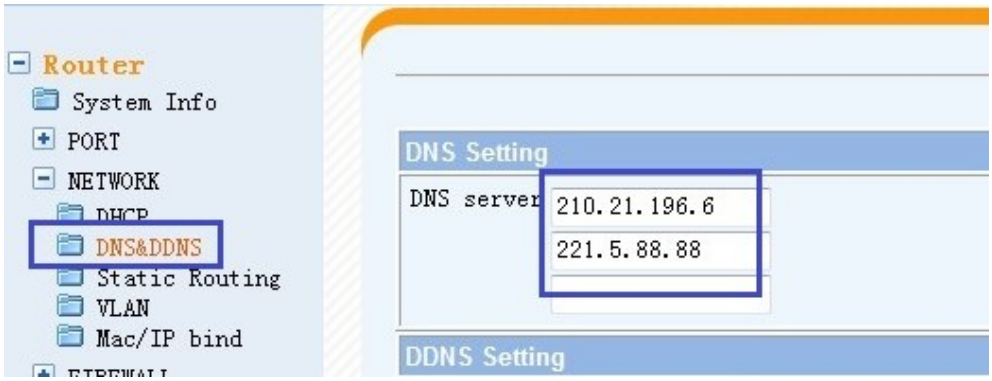
A. H685m series router can get the right DNS automatically once it's dialup to be online. Please follow the steps to setup.

Step 1): at router "WAN Setting", please choose "Yes" at "Get DNS from ISP?". Click "Save" button.

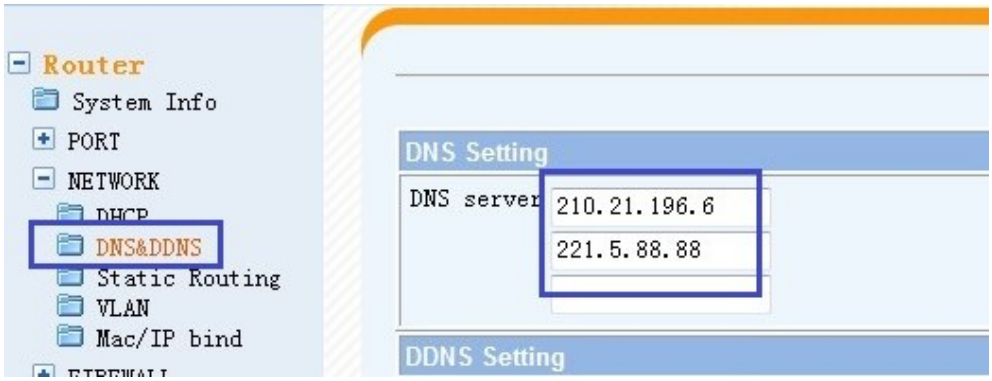


Step 2): once the H685m router dialup to be online. It will shows the DNS at "System Info". And will also automatically filled in DNS table.



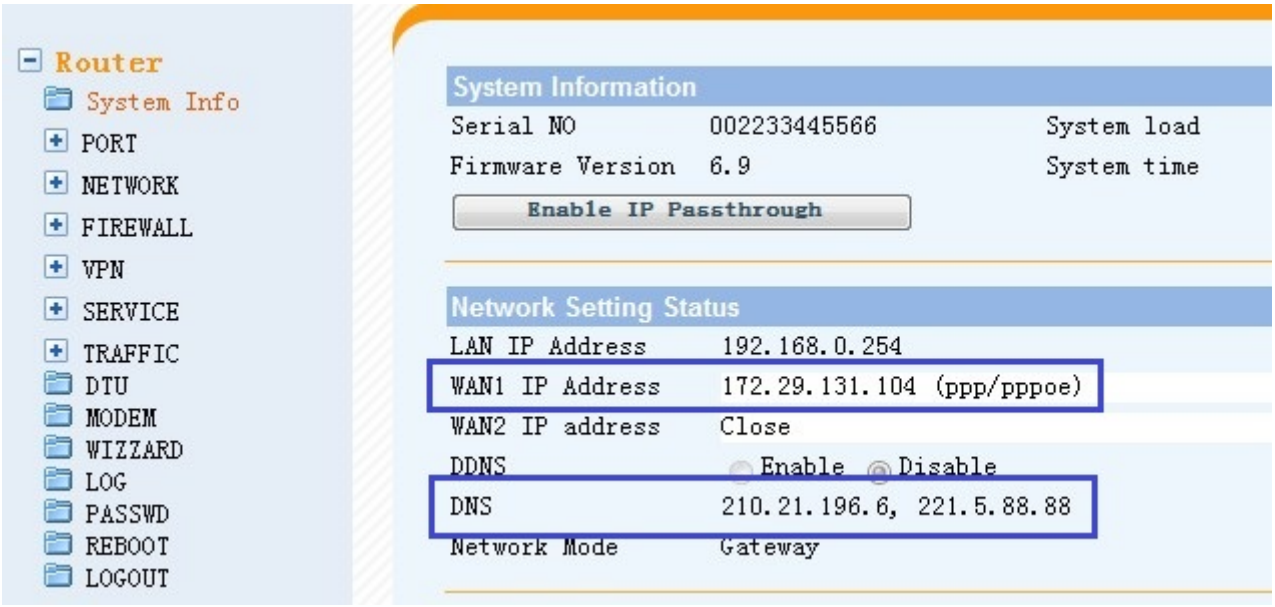


B. If you find the H685m router cannot get the correct DNS after it's dialup online. Please fill the correct DNS from your ISP at "Router—NETWORK—DNS&DDNS", then click "Apply" button and reboot the router.



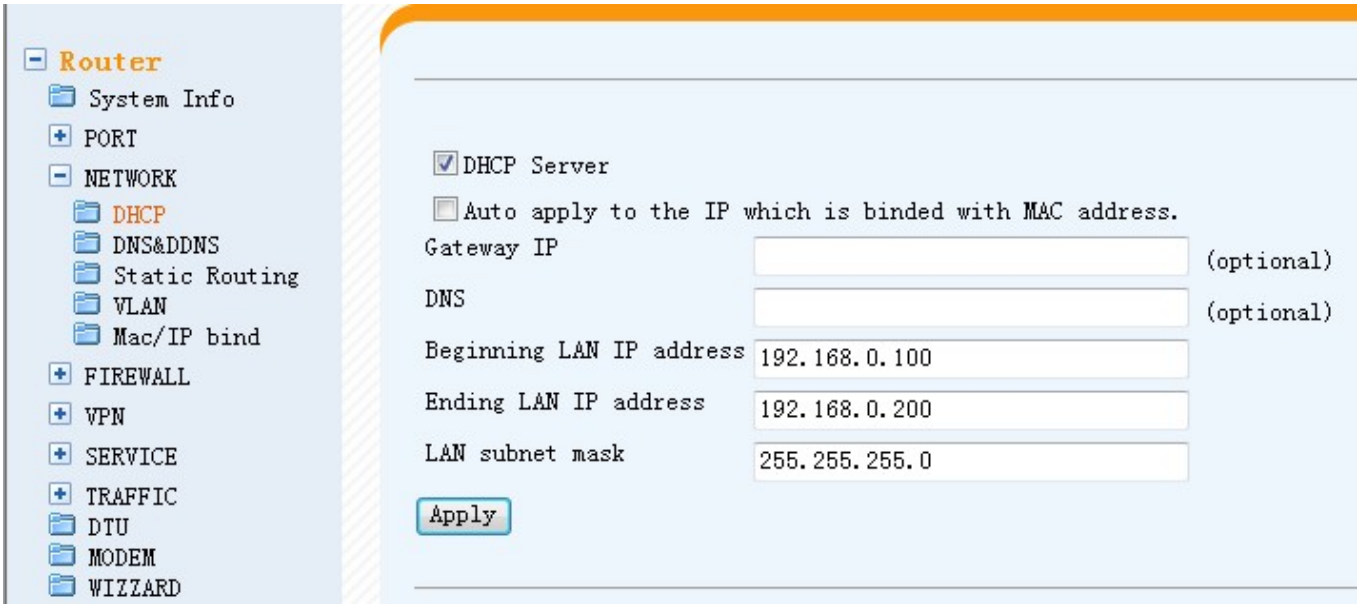
12.5 Router is dialup to online, but cannot get internet.

Step 1) Check if the router is online. If it's online, you can find the WAN IP Address and DNS at "Router—System Info".



If no WAN IP Address, please follow chapter “12.1” to make sure WAN Setting is correct. If there is WAN IP Address but no DNS, then please follow chapter “12.4” to check.

Step 2) Check the router’s DHCP is right set, and check device or PC’s Ethernet LAN is right setted.



Choose “DHCP Server”, and fill in the “Beginning LAN IP address”, “Ending LAN IP address”, and “LAN subnet mask”, then click “Apply” button and reboot the router.

Step 3) make your PC/Device’s Ethernet LAN card as automatically getting IP.

12.6 DDNS not working

1) Please confirm the DDNS configuration is correct.
2) Check if the router is online and get IP, and can visit internet.

3) Check if the WAN IP from sim card (shows in the status page once the router is online) is a public IP or privacy IP, privacy IP will make DDNS no work.

12.7 Port forwarding not working

Question: I configure the port forwarding feature correctly, but still no work.
Answer: first, please check the port if block by your ISP, because some ISP block some ports for security reason.
For example, the H685m gets WAN IP 27.38.14.223. And the H685m's web port is 10000. So from the other network, try to visit http:// 27.38.14.223:10000 if can be okay. If no okay, it means the ISP blocks the 10000 port. Then check with your ISP which ports are open for use. Then re-try the port forwarding feature.

12.8 Serial DTU point-to-point solution not working

Problem: Take two H685m. Both support Serial to cellular gateway feature (DTU feature). Configure one as client, the other as server. But no work.
Answer:
First, we confirm that the H685m both are online, and the server's IP is public IP that can be ping through from other networks.

Second, we confirm both H685m's DTU feature (Serial to Cellular Feature) are working. We test an example as follows,

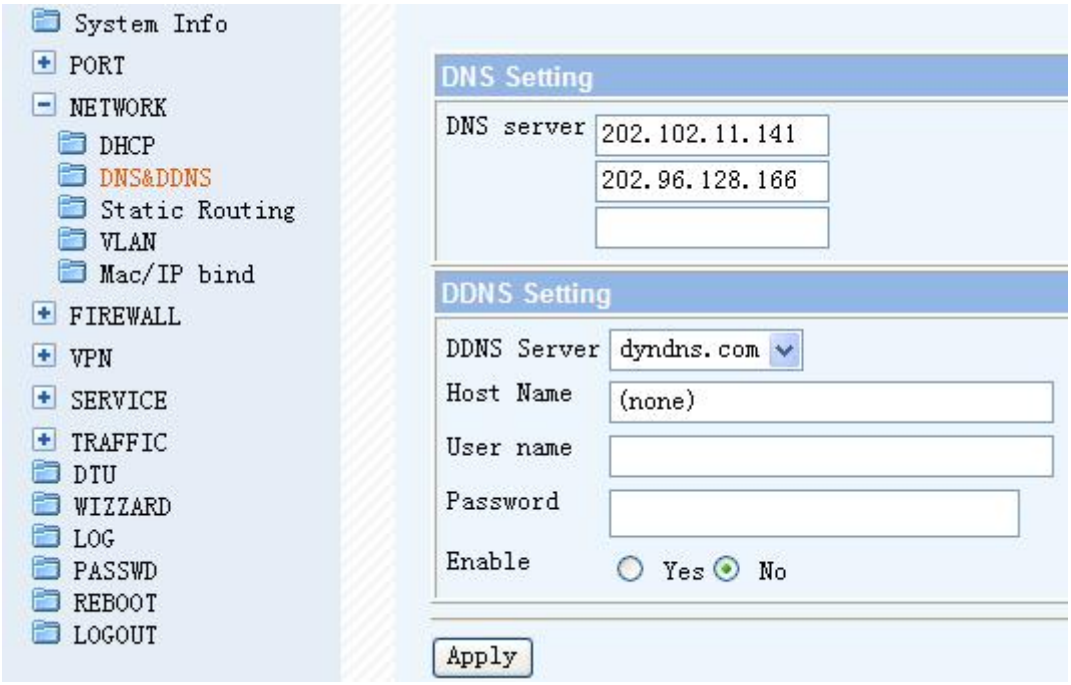
H685m DTU with vodafone sim as client (in Germany)--- China Telecom as server (In China): working
H685m DTU with vodafone sim as server (in Germany)--- China Telecom as client (In China): working
H685m DTU with vodafone sim as client (in Germany)----H685m DTU with vodafone sim as server (in Germany) : no working

This indicates the two vodafone sim cards cannot communicates each other. The Vodafone ISP limit the two internal's sim card's communication.

You have two ways to solve the problem.
1) get another sim card from another ISP to test.
2) ask the Vodafone ISP to unlimit two vadafone sim's communication.

12.9 DNS manual input not work

Problem: after fill in the DNS server manually, it indicates "Host name error" after click "Apply" button to save.



DNS Server: Normally it will automatically be filled once the router is online. However some ISP will not provide the DNS automatically, then please input here manually.

Notes: If you want to manually input DNS server, after fill in the parameter, please also fill in the “Host Name” with whatever characters, for example,